

A SYSTEM OF SYPHILIS

EDITED BY

D'ARCY POWER

AND

J. KEOGH MURPHY

OXFORD MEDICAL
PUBLICATIONS



22101335667

M27274

OXFORD MEDICAL PUBLICATIONS

~~S.~~
~~305.8.~~
~~610.8~~



A SYSTEM OF SYPHILIS

VOL. V

LIST OF AUTHORS

INTRODUCTION. SIR JONATHAN HUTCHINSON, F.R.S.

VOL. I. IWAN BLOCH, M.D.

ELIE METCHNIKOFF, Chef de Service de Micro-
biologie, Institut Pasteur.

F. W. ANDREWES, D.M. Oxon., F.R.C.P.

F. J. LAMBKIN, Colonel R.A.M.C.

ARTHUR SHILLITOE, F.R.C.S.

G. F. STILL, M.D. Cantab., F.R.C.P.

VOL. II. D'ARCY POWER, M.B. Oxon., F.R.C.S.

F. J. LAMBKIN, Colonel R.A.M.C.

W. J. GOW, M.D., F.R.C.P.

VOL. III. PROFESSOR WILLIAM OSLER, M.D., F.R.S.

A. G. GIBSON, D.M. Oxon., M.R.C.P.

CHARLES A. MERCIER, F.R.C.P., F.R.C.S.

PROFESSOR ALDO CASTELLANI, M.D., Direc-
tor of the Clinic for Tropical Diseases,
Colombo.

The late STANLEY B. ATKINSON, M.A., M.B.,
LL.B.

E. M. BROCKBANK, M.D., F.R.C.P.

HALDIN D. DAVIS, D.M. Oxon., F.R.C.S.,
M.R.C.P.

VOL. IV. F. W. MOTT, M.D., F.R.S.

VOL. V. PHINEAS S. ABRAHAM, M.D., F.R.C.S.I.

HALDIN D. DAVIS, D.M. Oxon., F.R.C.S.,
M.R.C.P.

C. DEVEREUX MARSHALL, F.R.C.S.

C. ERNEST WEST, F.R.C.S.

ST. CLAIR THOMSON, M.D., F.R.C.P., F.R.C.S.

VOL. VI. SIR ALFRED KEOGH, K.C.B., late D.G.,
Army Medical Service.

C. H. MELVILLE, Lieut.-Colonel R.A.M.C.

E. P. MOURILYAN, Fleet-Surgeon R.N.

C. E. POLLOCK, Major R.A.M.C.

L. W. HARRISON, Capt. R.A.M.C.

CHARLES N. FISKE, Surgeon U.S. Navy.

W. P. YETTS, Staff-Surgeon R.N.

CHARLES K. BUSHE, M.D., Staff-Surgeon R.N.

OXFORD MEDICAL PUBLICATIONS

A
SYSTEM OF SYPHILIS

IN SIX VOLUMES

EDITED BY

D'ARCY POWER, M.B. OXON., F.R.C.S.

AND

J. KEOGH MURPHY, M.C. CANTAB., F.R.C.S.

WITH AN INTRODUCTION

BY

SIR JONATHAN HUTCHINSON, F.R.S.

VOL. V

THE AFFECTIONS OF THE SKIN IN SYPHILIS	PHINEAS S. ABRAHAM, M.D., F.R.C.S.I. HALDIN D. DAVIS, D.M. OXON, F.R.C.S., M.R.C.P.
OCULAR SYPHILIS . . .	C. DEVEREUX MARSHALL, F.R.C.S.
AURAL SYPHILIS . . .	C. ERNEST WEST, F.R.C.S.
SYPHILIS IN THE UPPER AIR PASSAGES	ST. CLAIR THOMSON, F.R.C.P., F.R.C.S.

LONDON

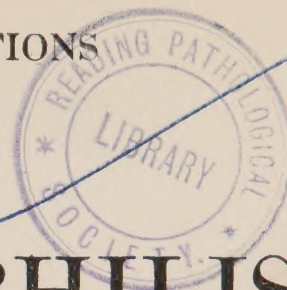
HENRY FROWDE

OXFORD UNIVERSITY PRESS

HODDER & STOUGHTON

WARWICK SQUARE, E.C.

1910



OXFORD: HORACE HART
PRINTER TO THE UNIVERSITY

M 27274

WELLCOME INSTITUTE LIBRARY	
Coll.	waMDmcc
Call	
No.	WC160
	1908-
	P885

CONTENTS

	PAGE
AFFECTIONS OF THE SKIN IN SYPHILIS. By Phineas S. Abraham, M.D., F.R.C.S.I., Surgeon for Diseases of the Skin to the West London Hospital, and Haldin D. Davis, D.M. Oxon., F.R.C.S., M.R.C.P., Physician to the Skin Department, Paddington Green Children's Hospital; Chief Assistant, Skin Department, St. Bartholomew's Hospital	1
CHAP. I. Historical and General	3
II. Classification of the Syphilides	19
III. The Early Syphilides	35
IV. The Rarer Forms of Early Syphilides	65
V. The Later Syphilides	85
VI. Syphilis of the Hair and Nails	98
VII. On the Diagnosis of Cutaneous Syphilides	105
VIII. Syphilides of the Mucous Membranes	134
IX. Congenital Syphilides	158
X. The Treatment of Cutaneous Syphilis	167
OCULAR SYPHILIS. By C. Devereux Marshall, F.R.C.S., Surgeon to the Royal London Ophthalmic Hospital, etc.	181
CHAP. XI. Primary Syphilis about the Eye	183
XII. Secondary and Tertiary Syphilis of the Eye	186
AURAL SYPHILIS. By C. Ernest West, F.R.C.S., Aural Surgeon to St. Bartholomew's Hospital, etc.	233
CHAP. XIII. Introductory	235
XIV. Acquired Aural Syphilis—Affections of the External Ear and Membrana Tympani	239
XV. Acquired Aural Syphilis—Affections of the Middle Ear and Eustachian Tube	246
XVI. Acquired Aural Syphilis—Affections of the Internal Ear and Auditory Nerve	257
XVII. Inherited Aural Syphilis	273

	PAGE
SYPHILIS IN THE UPPER AIR-PASSAGES. By St. Clair Thomson, M.D., F.R.C.P., F.R.C.S., Professor of Laryngology to King's College Hospital, etc.	289
CHAP. XVIII. Primary and Secondary Syphilis of the Nose	291
XIX. Tertiary Syphilis of the Nose	296
XX. Syphilis of the Pharynx, Naso-pharynx and Tonsils	308
XXI. Syphilis of the Larynx	328
XXII. Syphilis of the Trachea and Bronchi	341
INDEX	349

LIST OF ILLUSTRATIONS

ILLUSTRATING DR. PHINEAS ABRAHAM'S AND
DR. HALDIN D. DAVIS'S ARTICLE

PLATE.

- I. Macular syphilitic eruption beginning to fade. *Colour Plate.*
- II. Papulo-squamous syphilide. *Direct Colour Photograph.*
- III. Early circinated syphiloderma. *Direct Colour Photograph.*
- IV. Pigmentary syphiloderma. *Direct Colour Photograph.*
- V. Pigmentary syphiloderma. Part of the arm of the same patient. *Direct Colour Photograph.*
- VI. A large papular syphilide affecting the face. *Direct Colour Photograph.*
- VII. Papular eruption, passing into a squamous syphiloderma. *Direct Colour Photograph.*
- VIII. Squamous syphiloderma. *Direct Colour Photograph.*
- IX. Squamous syphiloderma. The same case at a later stage. *Direct Colour Photograph.*
- X. Tubercular syphiloderma. *Direct Colour Photograph.*
- XI. Pustular syphiloderma, or rupia. *Direct Colour Photograph.*
- XII. Pustular (ecthymatous) syphiloderma. *Direct Colour Photograph.*
- XIII. Severe pustular (ecthymatous) syphiloderma, or rupia. *Direct Colour Photograph.*
- XIV. Severe rupia. The same case at a later stage. *Direct Colour Photograph.*
- XV. Photograph of the back of the arm of a patient, showing rupial crusts with scars of healed ulcers.
- XVI. Nodular and framboesiform lesions on the face. *Direct Colour Photograph.*
- XVII. Bullous syphiloderma. *Direct Colour Photograph.*
- XVIII. Ulcerating nodular syphilide of the face, showing a resemblance to *Acne rosacea*. *Direct Colour Photograph.*
- XIX. Nodular and ulcerative syphilide of the lower limb. *Direct Colour Photograph.*
- XX. The same case seen from the side. *Colour Plate.*
- XXI. A late squamous syphilide of the foot. *Direct Colour Photograph.*
- XXII. Late syphilitic ulceration of the foot, with hyperkeratosis. *Direct Colour Photograph.*
- XXIII. A very late squamous syphilide of the forearm and hand. *Colour Plate.*
- XXIV. Hyperkeratosis in a syphilitic scar. *Direct Colour Photograph.*
- XXV. Late nodular syphilis of the leg.
- XXVI. Early syphilitic eruption resembling impetigo gestationis.
- XXVII. Streptococcal ulcer of the groin, resembling syphilitic phagedaena.
- XXVIII. Macular eruption of congenital syphilis. *Direct Colour Photograph.*
- XXIX. Congenital syphilis (circinated squamous eruption). *Direct Colour Photograph.*
- XXX. Congenital syphilis (papular and bullous eruption). *Direct Colour Photograph.*

ILLUSTRATING MR. C. DEVEREUX MARSHALL'S ARTICLE

PLATE.

- XXXI. 1. The results of severe syphilitic irido-cyclitis (Maitland Ramsay). *Colour Plate.*
 2. Primary syphilitic sore on the lower eyelid (Maitland Ramsay). *Colour Plate.*
 3. Primary syphilitic sore on the eyelid following a scratch (Maitland Ramsay). *Colour Plate.*
- XXXII. 1. Syphilitic iritis (Maitland Ramsay). *Colour Plate.*
 2. Gumma of sclerotic (Maitland Ramsay). *Colour Plate.*
 3. Gumma of sclerotic (Maitland Ramsay). *Colour Plate.*
- XXXIII. Gumma of iris (Maitland Ramsay). *Colour Plate.*
- XXXIV. Keratitis punctata.
- XXXV. A. Syphilitic infiltration of sclera.
 B. Interstitial keratitis.
- XXXVI. A. Patch of disseminated choroiditis.
 B. Patch of recent anterior choroido-retinitis.
- XXXVII. A. Disseminated choroiditis.
 B. Patch of choroido-retinitis.
- XXXVIII. Superficial choroiditis at the macula (W. Adams Frost). *Colour Plate.*
- XXXIX. Advanced choroiditis (W. Adams Frost). *Colour Plate.*
- XL. Disseminated choroiditis (W. Adams Frost). *Colour Plate.*
- XLI. Disseminated choroiditis, stage of atrophy (W. Adams Frost). *Colour Plate.*
- XLII. Disseminated choroiditis with conspicuous pigmentation (W. Adams Frost). *Colour Plate.*
- XLIII. Advanced choroiditis (W. Adams Frost). *Colour Plate.*
- XLIV. Choroiditis with secondary pigmentation of the retina (W. Adams Frost). *Colour Plate.*

ILLUSTRATING MR. C. ERNEST WEST'S ARTICLE

- XLV. Tertiary syphilis of the labyrinth (Manassez).

ILLUSTRATING PROFESSOR ST. CLAIR THOMSON'S ARTICLE

- XLVI. A. Syphilitic papule of the palate (Grünwald).
 B. Mucous patches (Grünwald). *Colour Plate.*
- XLVII. A. Tertiary syphilis of the pharynx (Grünwald).
 B. Cicatrized syphilitic ulcers of the pharynx (Grünwald). *Colour Plate.*
- XLVIII. Syphilis of the larynx. Figs. 1-6 (Grünwald). *Colour Plate.*
- XLIX. Chancre of the vestibule of the nose (Castex).
 L. A. Mucous patch. B. Tertiary ulceration of soft palate.
- LI. Tertiary ulceration of the hard palate and pharynx.
- LII. A. Congenital syphilis, showing saddle-back nose.
 B. The same after operation.
- LIII. Tertiary syphilis of the larynx.

THE AFFECTIONS OF THE SKIN IN
SYPHILIS

BY

PHINEAS S. ABRAHAM, M.A., M.D., B.Sc., F.R.C.S.I.

AND

HALDIN DAVIS, M.B., OXON., F.R.C.S., M.R.C.P.

THE AFFECTIONS OF THE SKIN IN SYPHILIS

CHAPTER I

HISTORICAL AND GENERAL

THE cutaneous manifestations which are present at some time or other in every patient who has acquired syphilis are so 'objective' that they have been regarded, ever since the disease has been studied, as perhaps the most important of the symptoms of the malady. From early times great stress has been laid on these very apparent phenomena; and the popular names, 'the pockis,' 'the pocks,' 'the pox,' or 'the great pox,' as applied to the general disease, indicate the importance attached to these skin lesions in the popular mind.

Although the symptoms of 'primary' and 'secondary' syphilis are considered by some writers (Lancereaux,¹ Berkeley Hill,² and others) to have been known to the Chinese and other ancient races many centuries before the Christian era, the connexion between eruptions on the skin and sores of the sexual organs in this disease was not recognized in Europe until the last decade of the fifteenth century, when the great epidemic of syphilis, which ravaged Spain, Italy, France, and other countries, attracted so much general attention. Torella,³ in 1498, described the eruptions of 'pudendagra', and Bedthencourt,⁴ in 1527, designated them 'venereal' affections. Their charac-

4 THE AFFECTIONS OF THE SKIN IN SYPHILIS

teristic colour was alluded to by Leoniceno⁵ in 1497—in probably the first European treatise published on the ‘*morbus gallicus*’, as the Italians called it ; and this colour was likened to that of ‘raw ham’ by Fallopius⁶ in 1555. Indeed, many of the characters which we now regard as of importance in the description of the cutaneous manifestations of syphilis appear to have been well known to the early writers. John of Vigo⁷ (1503–10) and Massa⁸ (1536) pointed out that the cutaneous phenomena of the disease often simulated other affections of the skin, and the dark-red colour, as well as the absence of itching, were regarded by them and the other early writers as noteworthy points in the diagnosis of the disease. The latency of syphilis was further pointed out by Massa, who showed that lesions of the skin and other symptoms might appear many years after the disease was first introduced into the system ; and the existence of a ‘specific virus’, which, by infecting the whole system of the individual, produced ‘primitive’ and ‘consecutive’ effects on the skin, was clearly proclaimed by Fernel⁹ in 1557 (quoted by Devergie).

Many of the observations and views of these early syphilologists are now universally admitted to be well founded ; but it is astonishing to find that so late as the first half of the nineteenth century some of the most fundamental were refused acceptance even by such able observers as Devergie¹⁰ (1834) who disbelieved in a ‘specific virus’ or in a ‘general infection’, and maintained that syphilis and the syphilides might be developed in certain circumstances simply by sexual or other excesses.

John Hunter¹¹ (1786), who was the first to describe fully the typical sore and to use the terms ‘local’ and ‘constitutional’ for the primary and secondary effects of the malady, failed to

differentiate the effects of gonorrhoea from those of 'lues venerea'. Benjamin Bell,¹² in 1793, pointed out that the two affections were distinct; but in spite of this, the creed that specific eruptions could be the sequelae of simple blennorrhagic discharges was vehemently maintained by Lagneau,¹³ Cazenave,¹⁴ Martins,¹⁵ Gibert,¹⁶ Bazin,¹⁷ as well as by Devergie¹⁸ and many others in the early part of the nineteenth century. The views now generally held did not, in fact, obtain much acceptance until Ricord¹⁹ definitely laid the matter at rest, and demonstrated by experiment that syphilides could only make their appearance after the patient had been the subject of an infective chancre. Ricord's observations have received abundant confirmation, and no one at present doubts that these eruptions are produced by the entrance into the system of a specific virus, now admitted to be a definite micro-organism, viz. the *Spirochaete pallida* of Schaudinn.

Many observers have sought for some special feature or features, anatomical or other, which can be regarded as peculiar to, and pathognomonic of, every cutaneous syphilitic lesion. If we leave out of consideration, for the moment, the spirochaete, this desideratum to some extent still exists: we cannot, indeed, say, at the present time, that any and every syphilide can be sharply differentiated clinically or microscopically from every other disease of the skin by any one special characteristic. There is no doubt, however, that not only are there certain characters, clinical and pathological, which, when taken together, at once, in most cases, mark out the syphilitic eruption and render the diagnosis certain—quite independently of the history of the case, and without reference to the other symptoms of the disease; but, as will be seen further

6 THE AFFECTIONS OF THE SKIN IN SYPHILIS

on, a certain anatomical unity as well as certain definite microscopical characters are to be recognized even in syphilitic cutaneous lesions which are apparently very dissimilar. As Bateman²⁰ long ago observed, the practised eye can usually recognize a difference between the ordinary diseases of the skin and the syphilitic eruptions. In the large majority of cases, in fact, the skilled observer, by carefully noting the form, colour, situation, course, &c., of the eruption, can very soon feel sure that he has to do with syphilis, however much the patient may be ignorant of, or protest against, possible infection. This conclusion moreover, can, where practicable, be further, to a large extent, confirmed by microscopical examination as well as by serum diagnosis, i. e. Wassermann's reaction and its modifications.

Carmichael²¹ believed that the character of the cutaneous lesions depended upon the nature of the initial sore: thus that a papular eruption followed a simple primary ulcer, a pustular resulted from an ulcer with indurated edges, a scaly one was the sequela of a true 'chancre' or callous ulcer, and that a phagedaenic eruption came after a primary phagedaenic ulcer. These views have long since been shown to have no foundation.

The following may be regarded as the characters most common to, and, taken more or less together, most distinctive of, the syphilides in general:

1. Their development with comparatively little or no febrile disturbance.
2. Their sluggish character, with comparatively slow evolution and resolution.
3. Their freedom from subjective sensations: itching and pain are seldom present.

4. Their remarkable amenity to certain drugs : e.g. mercury and potassium iodide.
5. Their dark-reddish or coppery tint.
6. Their tendency to polymorphism.
7. The frequent development of papules.
8. The circular form and small size of the early lesions.
9. The firm consistence of the lesions.
10. Their frequent localisation on the flexor surfaces, often with irregular distribution.
11. Their tendency to be arranged in circles or segments of circles.
12. The special characters of the scales and crusts.
13. The tendency of the later syphilide to spread at the edges in a serpiginous manner.
14. The peculiar character of the ulcerations and cicatrices.

It must be clearly understood that not one of these ' general characters ' is to be regarded in itself as absolutely diagnostic of a syphilitic eruption, and more than one of them will often not be present even in an undoubted syphilide ; but, on the other hand, it may be safely said that some of them will always be demonstrable in every syphilitic eruption. It must further be remembered that certain other distinct diseases of the skin may also exhibit one or more of the same characters.

The tendency of syphilitic eruptions to simulate the eruptions of many non-syphilitic diseases has long been noted, e.g. by John of Vigo, and Massa in the sixteenth century, and by Astruc²² in 1735. As Sir Jonathan Hutchinson (*loc. cit.* p. 20)²³ says, ' There is, in fact, no single skin disease of constitutional origin which may not be imitated very closely by an eruption which is due to syphilis,' but, as he further remarks, ' The imitation is rarely absolutely correct, . . . there is very frequently a

8 THE AFFECTIONS OF THE SKIN IN SYPHILIS

mixing of the types of two or more in one.' He formulates this in a general law, viz. ' Syphilis may imitate all known forms of skin disease, but it can produce no originals ' (loc. cit., p. 24).

The same authority has well remarked that the recognition of the disease ' is to be attained rather by careful appreciation of all the facts of the case, than by placing confidence in any one symptom '. In the diagnosis of a syphilide, therefore, we must not only consider all the above-mentioned points, but we must have regard to the period of its development, and to the presence of the other symptoms of syphilis, as well as to the history of the case.

It is needless to say that the various recent writers on syphilis attach very different degrees of importance to the above general characters of syphilitic eruptions. Thus Fournier²⁴ regards the first four as of fundamental importance in the order here given, and the others as subsidiary ; Sir Jonathan Hutchinson particularly emphasizes their polymorphism and their tint ; R. W. Taylor²⁵ the absence of itching and pain, their polymorphism, the colour and pigmentation, and their tendency to assume a circular form. Kaposi²⁶ recognizes three constant characters in all syphilides : (1) their peculiar consistence from infiltration, (2) their tendency to be absorbed with atrophy, and (3) their tendency to enlarge peripherally. He regards as subsidiary characters their rounded form, livid red colour, thinner scales, dark crusts, peculiar ulceration, polymorphism, localisation, &c.

Dr. Radcliffe Crocker²⁷ considered that ' a polymorphous non-pruritic eruption is almost characteristic of syphilis ' ; and, in addition, he lays stress on the peculiarities of symmetry, position, arrangement, colour, variability, and pigmentation.

These general characters may be considered in detail.

1. A large majority of syphilitic eruptions are neither accompanied nor preceded by any appreciable rise of temperature: they are apyretic—thus differing in a very marked manner from the acute exanthemata or eruptive fevers. Fever, however, is sometimes experienced, and is occasionally of a very severe character; but when this does occur, it has, according to Fournier, no definite or constant relation to the eruption; it may precede the latter, or make its appearance after the efflorescence has developed; in other words, as observed by Lang,²⁸ there may be an ‘invasion’ fever as well as an ‘eruption’ fever, the former often appearing seven or eight weeks after infection, and being characterized by a more remittent course. It rarely begins with a rigor, but there is usually some general lassitude and weakness, rheumatoid pains, and loss of appetite, as well as a rise of temperature to 100° F. or 101° F.: it seldom lasts longer than two to four days. The skin affections which subsequently appear seem to bear, in their extent or distribution, no relation to the amount or development of this invasion fever.

In the description of the ‘secondary’ rashes, it will be shown that some constitutional disturbance or an ‘eruption fever’ is by no means always absent.

2. Syphilides are sluggish and slow in evolution—not rapidly developed and transient, like the eruptions of the ordinary exanthemata: they show no inflammatory reaction, and they may persist without change for weeks, months, or even years. This character of chronicity is, however, by no means peculiar to the syphilides: it is to be observed in many other diseases of the skin. On the other hand, an early syphilitic eruption may occasionally burst out suddenly, and assume its full development in a few days or even hours—especially after

10 THE AFFECTIONS OF THE SKIN IN SYPHILIS

exposure to extreme heat, hot or vapour baths, or perhaps extreme cold, and after vigorous mercurial inunction, as well as after alcoholic and other excesses.

3. It is not usual for a patient with a syphilitic efflorescence to experience any sensation in the affected parts of the skin : pain and burning are rare, and pruritus or itching is by no means common. An eruption indeed may have become developed, especially on covered parts, for a considerable time, and its existence be quite unknown to the patient.

Occasionally, however, and especially in certain parts, itching becomes a prominent symptom : this is particularly apt to occur on the scalp, scrotum, and perineum, and the fronts of the legs, as well as when the syphilide happens to be complicated with eczema, or other pruritic skin affection. Very rarely, a pure syphilide may be intensely pruritic.

4. There are few diseases which respond so readily to treatment by drugs as syphilis.

Under the administration of mercury in particular, the most severe syphilides usually resolve and disappear. The specific action of mercury on the syphilitic lesion is indeed remarkable ; and the same, to a less extent perhaps, except as regards the late syphilides, may be said of potassium iodide. It is certain that neither of these drugs influences other diseases of the skin in a similar way. Their rapid action, in fact, will often clear up the diagnosis of a doubtful case. At the same time it must be borne in mind, that cases undoubtedly syphilitic occasionally present themselves which are extremely rebellious to treatment by either or both of these drugs.

5. Many syphilides exhibit a dark brownish red, 'raw ham' or coppery colour (Plates VIII, IX, X, XII)—a fact, as we

have seen, that has been noted from the earliest times, and dwelt upon by numberless writers ever since.* But this character, as Ricord pointed out, does not invariably exist; an early roseola may be of the faintest pink without the least coppery or dusky tint—indeed, the characteristic colour rarely presents itself until the erythematous rash is disappearing or until, as sometimes happens, the rosy spots become swollen and transformed into papules. It is also sometimes absent even in the well-developed papular, tuberculated, vesicular, and pustular forms, as well as invariably in the moist papules or condylomata. This coppery tint varies in intensity: it is darker on the legs where there may be venous congestion, and is less dusky in fair skins.

The observer, moreover, must not lose sight of the fact that a somewhat similar dark reddish tint is often to be observed in other diseases of the skin, e. g. in ordinary psoriasis, in lichen planus, in lupus, in leprosy, and in some forms of malignant disease. The reddish brown colour of the syphilide is not at first due to an increase of pigment in the epidermis, but rather to the localised hyperaemia and blood stasis, combined with the brownish colour of the plasma cells, which so largely are accountable for the infiltration of the corium.

6. We frequently observe, especially in the so-called 'secondary' syphilides, several kinds of elementary lesions existing together. The rash is, in fact, 'polymorphic': there may be present, at the same time and on the same subject, erythematous spots, scaly patches, papules, vesicles, pustules, crusted patches, &c. This polymorphism is very noteworthy, and should always be looked for; but its absence would not

* Leoniceno in 1497 first noted the peculiar tint, Fallopius compared it to 'raw ham' in 1555, and Schwedianer²⁹ called it 'coppery' in 1785.

12 THE AFFECTIONS OF THE SKIN IN SYPHILIS

necessarily contra-indicate the syphilitic nature of a case ; for a syphilide is sometimes quite uniform in the character of the lesions.

This tendency to multiformity is, however, far more characteristic of the syphilide than of any other disease of the skin, with the exception perhaps of advanced scabies : most non-syphilitic dermatoses, indeed, are uniform in their form and appearance. The elementary lesions of the syphilide, it must be remembered, often change their form and develop one from the other—a macule becoming a papule, the latter a vesicle or pustule, and either of them changing into a squamous or crusted patch ; all these stages may be present at the same time, thus producing the multiformity alluded to. As will be seen below, Sir Erasmus Wilson³⁰ particularly emphasized this transition of one form into another.

7. Berkeley Hill considered that the papule was the type or basis of all syphilitic eruptions, that the papular was the commonest eruption, and that all the others were frequently more or less mingled with papules. He regarded this as the first character possessed in common by the early forms.

8. The individual lesions of the syphilide very commonly appear as small circumscribed patches—of about the size of a lentil, rarely less than 2 mm. or more than 8 mm. in diameter. Unna attaches great importance to this elementary character ; but in the experience of most observers the exceptions, as regards size, are numerous.

9. Kaposi considered of great importance the firm consistence, or indurated feel to the observer's finger, of the syphilitic cutaneous lesions. This is true as regards all but the early roseolas ; and, as we shall see, it is due to the localised and persistent aggregation or packing of large numbers of

certain cellular elements, viz. plasma cells, around the vessels and among the connective tissue fibres of the true skin.

10. The localisation of the syphilide is often a point of value in the recognition of the disease. The very early erythematous rashes are symmetrically distributed, chiefly at first on the abdomen, sides of the body, chest and back, and on the limbs—principally on the flexor surfaces.

The papular and other somewhat later eruptions are also very generally distributed, and particularly on the trunk, the fronts of the arms, inner part of the thighs, back and sides of the neck, on the forehead, and about the mouth (Plate I).

The very late, or so-called 'tertiary' syphilide, on the other hand, is commonly asymmetrical and more localised: some part of the face, or of the scalp, one of the palms or soles, or one knee, being favourite situations; although any part of the body may also be irregularly invaded.

11. Many syphilides, especially the later so-called 'secondaries' and recurrent eruptions, have a tendency to be developed in rings or circles, or in segments thereof, and to assume a gyrate or serpiginous form from the coalescence of neighbouring circles—a characteristic which, in conjunction with others, will often materially assist in the diagnosis. Psoriasis and some other non-specific dermatoses may, however, exhibit the same tendency (Plate III).

12. Some observers attach importance to the character of the scales and crusts in the squamous and crusted syphilides.

Bielt³¹ and Cazenave³² pointed out that the scales are in general thinner and drier than in other squamous diseases of the skin, and that they do not cover the whole of the spot, around which they often form a greyish white border; also that the syphilitic crusts, when present, are thicker, harder,

14 THE AFFECTIONS OF THE SKIN IN SYPHILIS

more uneven, more adherent, and of a darker greenish colour than in non-syphilitic conditions.

13. The tendency of the syphilitic skin disease to spread peripherally and to appear with an irregularly curved or serpiginous margin is especially noticeable in the later cutaneous lesions. When this character is seen in an early syphilide, it is due either to the coalescence of ringed lesions, as just stated, or, as Unna³³ maintains, to the co-existence or concomitance of some extraneous inflammatory dermatosis, like seborrhoea (Plate III).

14. The typical syphilitic ulcer is rounded, 'punched out,' with perpendicular walls and with a yellowish grey depressed base, and often surrounded by a dark reddish areola. The exudation is purulent and soon dries into a greenish crust.

The resulting scar is thin and depressed, often at first of a dark livid or brown, and ultimately white hue. It is sometimes pitted, or with an irregular surface.

It has been urged that some of the above characters do not properly belong to the pure syphilide, and that they are only to be demonstrated where the latter is complicated by some extraneous inflammatory element, or by the co-existence of some other disease of the skin. Thus the serpiginous spreading of many syphilides is, as we have seen, regarded by Unna as due to concomitant seborrhoeic eczema ; and there can be no doubt that the development of pus or of crusts is in many cases due to the presence of staphylococci and other micro-organisms which have nothing to do with syphilis, i. e. that many pustular and crusted syphilides are really syphilides *plus* something else. Campana³⁴ and many others have demonstrated the *Staphylococcus aureus* and the *S. albus* in pustular syphilitic affections, and Lang has even found them in the tissues around the

pustules. These complicated or compound lesions are, at any rate, in themselves very characteristic, and their presence may be regarded as giving presumptive evidence of the existence of the disease.

From the contemplation of the clinical characters of these lesions, so protean in their form and so elusive of accurate description, one turns with relief to the consideration of their pathology, which is of a comparatively simple nature. It cannot be too clearly recognized that all syphilitic lesions are due to the reaction of the tissues to the presence of the *Spirochaete pallida*. This reaction comprises a vascular engorgement, followed by a proliferation of the endothelium of the vessels, a cell-infiltration, and a formation of new fibrous tissue. The clinical differences are due to differences in accentuation of these factors, and to the anatomical peculiarities of the part whereon each lesion happens to be situated. Although this view has met with considerable opposition in the past it is now generally conceded that we can find Schaudinn's specific spirochaete in every syphilitic lesion—in the various cutaneous eruptions as well as in the primary sore, in the gummata, the swollen glands, and in every other organ which may be affected with the disease. Shortly after its initial discovery in the juice of a syphilitic chancre, the spirillum was found by Schaudinn and Hoffmann in soft papules or condylomata, and by Metchnikoff in cutaneous papules far removed from the genital organs (see vol. i, p. 57), and these results have been abundantly confirmed and extended by the original discoverers as well as by numerous other observers. It must be admitted, however, that at the present date it is only with difficulty that the organism can be demonstrated in some types of lesion.

The spirochaetes may be demonstrated in the skin lesions either by taking smears from artificially blistered surfaces or in sections. The technique of the various methods is sufficiently described in Professor Metchnikoff's article in this work (vol. i, p. 86-94).

The presence of the specific micro-organisms in the cutaneous tissues appears to have the effect of producing an inflammatory cellular hyperplasia, in other words a 'granulomatous' deposit, in the first place around, or in the immediate neighbourhood of the blood-vessels.

As described in the article on 'The General Pathology of Syphilis' (vol. i, pp. 150-61), most of the elements making up this new growth are the so-called 'plasma cells' of Unna, which can be so well recognized by their peculiar behaviour to certain stains, e. g. by Pappenheim's method. This new growth constitutes the so-called 'plasmoma' of many authors. In the very early erythematous syphilide, while the vascular and perivascular engorgement and commencing inflammation are apparent, the cellular hyperplasia is comparatively scanty; but in the raised papular forms of the early eruption the cellular infiltration becomes abundant, and the mass of the syphilide is seen in sections to be largely constituted of this new cell-growth.

There is at the same time going on in all syphilides the formation of new fibrous or, as Unna calls it, 'collagenous' tissue, and it is to the existence of this latter that the comparatively firm consistence of the syphilide is due: a character which especially differentiates the syphilitic from the lupus nodule and from other granulomata in which the fibrous elements are less abundant.

The elasticity of the syphilitic papule is believed by Unna

(loc. cit., p. 522) to be caused by the dense collections of plasma cells which are situated between the fibres. In addition to the plasma cells which make up the bulk of the growth in the syphilitic granulomata, the 'mast cells' of Auspitz, as well as giant cells, may frequently be seen in sections.

According to Unna, the characteristic 'raw ham' and 'coppery' tint of the syphilides may be best explained by the coexistence of the three factors, vascularity, plasma cell collections, and 'collagenous tissue'. The first gives a blood-red colour, the second is yellowish and transparent, the third is white and opaque. When a papule is pressed upon with a 'diascope', the blood of the superficial capillary vessels is pressed out, and the yellow colour of the plasma cells comes into view, giving the appearance of the 'apple-jelly' substance of lupus. Unna considers, therefore, that the 'coppery' tint is due to a combination of the colour of the blood with that of the transparent plasma cells. On the other hand, if there be much collagenous tissue present, the colour of the deeper vessels will show through with a violaceous tint, and this will help to produce the 'raw ham' colour. Other authorities, it must be stated, regard the typical colour of the syphilide as largely due to extravasated blood-pigment.

However this may be, there can be no doubt that the dark pigmentation of certain syphilides, as well as that which may remain so long upon the site of a healed syphilitic lesion, is largely due to pigment contained in the epithelial cells, and in the melanoblasts of Ehrmann.³⁵

In many early syphilides there is a tendency to show resolution, the new cell growth gradually atrophies, and the site of the lesion ultimately resumes its normal structure; but when the whole corium has been involved, and particularly

18 THE AFFECTIONS OF THE SKIN IN SYPHILIS

if the subcutaneous tissue has been invaded, more or less cicatricial contraction takes place. This is especially the case where pus has been produced by invasion of staphylococci, &c., or where necrosis of the tissue elements has ensued.

As will be seen later on, this is the normal course of events in the late syphilides.

Hjelmman³⁶ and others have demonstrated the presence of old exudation cells and other evidences of the disease in the sites of syphilides many months after the lesions have apparently healed or have disappeared. More than this, Sandmann³⁷ has been able to infect apes with material derived from healed syphilitic lesions, and Hoffmann³⁸ has been able to demonstrate living spirochaetes in syphilitic scar-tissue. These facts explain amply the recurrences which are so common.

The microscopic anatomy of the principal syphilides will be further described under their respective headings.

CHAPTER II

CLASSIFICATION OF THE SYPHILIDES

It is interesting to observe that several of the early writers on Syphilis not only differentiated a number of venereal eruptions, but actually attempted to place them in some form of order, i. e. to formulate classifications. Thus Torella (1497) divided the 'Pudendagrae' into 'dry' and 'moist' forms, and each of these into two kinds; while Fallopius (1564) distinguished five species of 'pustules', as he called them, as characteristic of the disease.

No further attempt at a classification of the skin lesions seems to have been made—nor, indeed, much further progress in the general knowledge of the complaint—until towards the end of the eighteenth or beginning of the nineteenth centuries. In 1783, Plenck³⁹, in his 'Classification of Diseases of the Skin', enumerated ten kinds of syphilitic eruptions under the designations: (1) *Gutta rosacea* or *maculae syphiliticae*; (2) *Scabies venerea*; (3) *Herpes syphiliticus*; (4) *Tinea venerea*; (5) *Mentagra venerea*; (6) *Impetigo venerea*; (7) *Verrucae venereae*; (8) *Condylomata venerea*; (9) *Aphthae venereae*; and (10) *Rhagades venereae*.

Most of these we can now identify in the cutaneous syphilitic manifestations that come before us.

The father of British Dermatology, Willan⁴⁰ (1808), did not separate—as a class—syphilitic efflorescences from the other diseases of the skin; although he was evidently quite alive to the syphilitic nature of several of the eruptions which he

included in his celebrated and very generally accepted scheme of classification of the cutaneous affections. As we shall see, classifications based upon Willan's elementary lesions were some years afterwards adopted by Bielt and others, and at the present time we employ Willan's terms, 'papular,' 'squamous,' &c., to designate the various syphilides.

The French writers seem to have particularly interested themselves in this department of the subject. Trappe⁴¹, in 1803, divided syphilitic eruptions into two classes : (1) 'Excrescences', and (2) 'Pustules'. Under the former he included seven forms : 'les sessiles,' 'les pédonculées,' 'les verruqueuses,' 'les rhagades,' &c. ; and under the latter : 'les ortiées,' 'les miliaires,' 'les vésiculeuses,' 'les lenticulaires,' 'les squameuses,' 'les merisées,' 'les croûteuses,' and 'les serpigneuses.'

Lagneau (1803), and Cullerier the elder⁴² (1820), modified and extended Trappe's classification ; but the most elaborate of these early attempts was that published by Alibert⁴³ in 1825 in his great work 'Maladies de la Peau'. This authority was the first to unite all the syphilitic affections of the skin under the name of 'Syphilides', a term which has since been very generally accepted and adopted by dermatologists all over the world.

He recognized three principal forms of syphilides : (1) 'Syphilides pustulantes' ; (2) 'Syphilides végétantes' ; and (3) 'Syphilides ulcéranes'.

The first he divided into twelve varieties : (1) 'Squameuse' ; (2) 'Crustacée' ; (3) 'Pemphigoïde' ; (4) 'Lenticulaire' ; (5) 'En grappe' ; (6) 'Merisée' ; (7) 'Miliaire' ; (8) 'Ortiée' ; (9) 'Serpigneuse' ; (10) 'Scabioïde' ; (11) 'Varioloïde' ; (12) 'Tuberculeuse'.

The second included six varieties : (1) 'Framboisée' ; (2) 'En choux-fleurs' ; (3) 'En crêtes' ; (4) 'En poireaux' ; (5) 'En verrues' ; (6) 'En condylomes'.

The third comprised : (1) 'Serpigineuse' ; (2) 'En profondeur' ; (3) 'En fente' (rhagades).

Alibert was at the same time well acquainted with, and speaks of, the roseolous maculae which may precede these eruptions, although he did not include them in his scheme of the 'syphilides'.

Biett (1836), of the Hôpital Saint-Louis, shortly afterwards presented a still more precise classification of the syphilitic eruptions, and, following the plan which Willan had introduced for the diseases of the skin in general, he grouped them according to the nature of their 'elementary lesions' into six classes : (1) 'Syphilide exanthématique' ; (2) 'Syphilide vésiculeuse' ; (3) 'Syphilide pustuleuse' ; (4) 'Syphilide tuberculeuse' ; (5) 'Syphilide papuleuse' ; (6) 'Syphilide squameuse'.

Biett certainly gave the most accurate description of these syphilitic eruptions up to his time ; and most of the subsequent writers on the subject, from Bassereau⁴⁴ onwards, have to a great extent adopted his nomenclature and his classification. Indeed, we still use these terms for the various groups as now recognized.

A grouping of the syphilides in reference to the period of their manifestation was first made by Cazenave (1838), who divided them into 'primitive' and 'consecutive' rashes ; but the great authority Ricord (1838) was really the first to attempt to clearly differentiate and define 'primary', 'secondary', and 'tertiary' stages in syphilis, and to ascribe to these stages certain definite and characteristic eruptions. Since his epoch-making observations, and until comparatively recently, the terms

'secondary' and 'tertiary' have been almost universally employed to designate the cutaneous affections which respectively make their appearance early or late in the course of the disease; and, in fact, many writers still cling to the division of these specific eruptions of the skin into two groups, viz. the so-called 'secondaries' and 'tertiaries'.

From a dermatological point of view such a classification is not satisfactory. As will be seen, moreover, later on, eruptions which in point of time are really 'secondary', i. e. appearing within a few months after the appearance of the primary lesion, occasionally have the ulcerative and other characters of those which usually appear late, or resemble the so-called 'tertiaries'; and, vice versa, eruptions appearing late, or in the 'tertiary' stage, not infrequently resemble in form and structure those which more commonly show themselves early or in the 'secondary' stage of the disease. These latter are often regarded as recurrent 'secondaries'; but they may really also be sometimes simply 'late' or 'retarded' rashes. At any rate, that no hard and fast line of demarcation can be drawn between the so-called 'secondary' and 'tertiary' syphilides is evidenced by the fact that a class of 'intermediate' syphilides, as proposed long ago by Hardy⁴⁵, is now being recognized by such an authority as Sir Jonathan Hutchinson as well as other eminent syphilologists.

As will be shown later on, it may, nevertheless, be broadly stated that the differences between the syphilides which appear early on the one hand, or late on the other, in the course of the disease, are, as a rule, so marked, that it is usually easy, from the form and appearance in any given case, to determine whether a syphilitic eruption has arisen within a few months, or at a more considerable lapse of time, after infection.

The most notable classification based upon the time when the eruptions appear is that of Hardy who, in 1864, divided the syphilides into three groups: (1) 'Syphilides précoces', occurring from three weeks to ten months after the primary chancre; (2) 'Syphilides intermédiaires', making their appearance in from six months to two years; and (3) 'Syphilides tardives,' manifesting themselves in from two to thirty years.

Of the comparatively recent attempts at the classification of the syphilides, the following may be particularly noted. Sir Erasmus Wilson (1852) in his work on 'Syphilis and Syphilitic Eruptions', divides the 'syphilodermata', as he suggested that they should be called, into two principal forms, the one being 'simply congestive and unattended with elevation of the skin', and the other 'presenting the obvious feature of elevation'. He emphatically insisted that there were no essential differences between the various syphilodermata, that there was really but one eruption in syphilis, and that the apparent differences were due to superficial modifications, or that the various forms might be regarded as stages in development of the one essential eruption. 'Roseola', he maintained, by easy gradation passed into 'lichen' or the 'tubercular' syphiloderm, and the latter by simple subsidence became a syphilitic macula, or ended in ulceration or a cicatrix.

In his first category, *Syphiloderma roseolatum*, he placed:

1. *Roseola syphilitica*.

R. versicolor.

R. orbicularis.

R. annulata.

R. punctata.

R. papulata.

2. *Maculae syphiliticae.*

In the second category, *Syphiloderma papulatum* :

1. *Lichen syphiliticum.*

L. corymbosum.

L. disseminatum.

L. confertum.

L. annulatum.

L. pustulosum.

2. *Tubercula syphilitica.*

T. corymbosa.

T. circumscripta.

T. disseminata.

T. annulata.

T. ulcerantia.

Bazin (1834) divided the syphilides into two chief groups :

(a) *Syphilides résolutives*, and (b) *Syphilides ulcéreuses*.

Under the former he includes :—

1^{ère} section—Exanthématiques.

1. Érythémateuse.

2. Papuleuse.

3. Pustuleuse.

4. Vésiculeuse.

2^{ème} section—Circonsrites.

1. Tuberculeuse.

2. Pustulo-crustacée.

3. Papulo-vésiculeuse.

Under the latter :—

1. Puro-vésiculeuse.
2. Tuberculo-ulcéreuse.
3. Gommeuse.

Berkeley Hill (loc. cit.) describes the following forms of the syphilides :—

Macular syphilides (syphilitic roseola) with two varieties—small and large.

Papular syphilides, comprising miliary, lenticular, nummular, scaling, and leproid syphilides, the so-called 'psoriasis palmaris' and 'plantaris', as well as moist papules and mucous patches.

Vesicular and pustular syphilides. Eczematous, herpetiform, varioliform, and varicelliform, acneiform, impetiginous, ecthymatous, rupial, and pemphigoid.

Tubercular syphilides. Superficial—serpiginous (syphilitic lupus) ; and deep (subcutaneous gummata).

Pigmentary syphilide.

In 1883, Sangster⁴⁶ suggested a classification of the skin diseases in syphilis based upon pathological considerations. This was adopted by Radcliffe Crocker, with slight modifications, as follows :—

I. Circumscribd hyperaemia with slight infiltration :—

Macular.

Erythematous.

II. Marked infiltration of the papillary body :—

- | | | |
|-----------------------------|---|--|
| Papular variously modified. | { | <ol style="list-style-type: none"> 1. Dry papular. 2. Squamous, patchy or circinate. 3. Lenticular or large papule. 4. Moist papular, or mucous tubercles. |
|-----------------------------|---|--|

III. Especial implication of the hair follicle or its immediate neighbourhood :—

Follicular of progressive severity.	{	1. Miliary papular or follicular	{	large.
		2. Miliary papulo-vesicular.		small.
		3. Miliary papulo-pustular.		
		4. Acneiform.		

IV. Infiltration with subepithelial suppuration and superficial ulceration :—

Varicelliform and Varioliform.

Ecthymatous { 1. Superficial.
2. Deep.

Bullous { 3. Rupia.
4. Pemphigoid.

V. Gummatous infiltration with tendency to ulceration :—

Nodular syphilides.

VI. Extravasation of blood constituents :—

Pigmentary syphilide (pigment only).

Purpuric (blood).

The teaching of the great French authority, Professor A. Fournier, is now so largely followed, that attention must be particularly directed to the able and comprehensive classification of the syphilitic eruptions, which he presented to us in the first edition of his 'Leçons' in 1873, and which he still follows in his teaching.

He observes that the syphilides, as previously pointed out by Alibert, form a natural group or 'family' of the dermatoses or diseases of the skin, and that they are naturally divided into two large groups: (1) Syphilides of the skin (syphilides properly so called), and (2) Syphilides of the mucous membrane.

He considers that from a practical point of view the numerous forms of syphilides of the skin may all be included under eight natural types :—

I. *Type Érythémateux* (Syphilides érythémateuses).

Three species	{	Roséole.
		Roséole ortiée.
		Roséole circinée.

II. *Type Papuleux* (Syphilides papuleuses).

Four species	{	Syphilide papuleuse.
		Syphilide pustulo-squameuse.
		Syphilide pustulo-croûteuse.
		Syphilide pustulo-érosive.

III. *Type Squameux* (Syphilide squameuse).

(Très rare.)

IV. *Type Vésiculeux* (Syphilides vésiculeuses).

Un seul type important : syphilide herpétiforme.

V. *Type Pustulo-crustacé* (Syphilides pustulo-crustacées)

Three species	{	Syphilide acnéiforme.
		Syphilide impétigineuse.
		Syphilide ecthymateuse.

VI. *Type Bulleux* (Syphilides bulleuses).

Two species	{	Pemphigus (?)
		Rupia.

VII. *Type Maculeux* (Syphilide pigmentaire).

VIII. *Type Gommeux* (Syphilides gommeuses).

The first seven of these groups he regards as belonging to the 'secondary' stage of syphilis, although some of them make their appearance at a somewhat advanced period of the disease ; and he considers that the last exclusively belongs to the 'tertiary' period.

28 THE AFFECTIONS OF THE SKIN IN SYPHILIS

The modern German authorities seem to eschew elaborate classifications.

Neumann⁴⁷ described the following forms among the cutaneous lesions of 'secondary' and 'tertiary' syphilis.

1. Syphilis cutanea maculosa.
2. S. papulosa, tuberculosa, nodosa.
3. S. squamosa.
4. S. vegetans.
5. S. pustulosa.
6. S. bullosa (*Pemphigus syphiliticus*).
7. S. ulcerosa.
8. *Rupia syphilitica*.
9. *Gumma syphiliticum*.
10. *Alopecia syphilitica*.
11. *Paronychia* and *Onychia syphilitica*.
12. Syphilis hereditaria.

Kaposi considered as typical forms :—

1. Das Fleckensyphilid (*Roseola syphilitica*).
2. Knötchen-Syphilid (*S. cutanea papulosa*).
3. Pustulöses Syphilid (*S. cutanea pustulosa*).
4. Knoten-Syphilid (*S. cutanea nodosa*, *S. gummosa*).
5. Geschwüriges Syphilid (*S. cutanea ulcerosa*).

Lang includes the syphilitic eruptions under the following heads :—

1. *Roseola syphilitica* ; Syphilitisches Erythem ; Makulöses oder Fleckensyphilid.
2. Papulöses Syphilid ; Syphilis papulosa ; Knötchen-Syphilid.
3. Pustulöses Syphilid ; Syphilis pustulosa ; Pustel-Syphilid.
4. Gummata der Haut und des Unterhautzellgewebes ;

Syphilis gummosa cutanea et subcutanea; Knoten-Syphilid der Haut und des Unterhautzellgewebes.

Professor E. Lesser⁴⁸ describes—

1. Das maculöse Syphilid (Fleckensyphilid, *Roseola syphilitica*), and under this head he includes ' *Leucoderma syphiliticum* ', and ' *Impetigo syphilitica capitis* '.
2. Das secundäre papulöse Syphilid.

Das grosspapulöse Syphilid (*Exanthema papulosum lentificulare*), including—

Papulo-krustöses Syphilid (Fournier), Nässende Papel, Papulo-squamöses Syphilid, *Psoriasis palmaris et plantaris syphilitica*, Circinäre papulöses Syphilid, das papilläre Syphilid, *Erythema exudativum multiforme* und das *E. nodosum* entsprechende Syphilid, Nodöses Syphilid (Hoffmann).

Das kleinpapulöse Syphilid (*Exanthema papulosum miliare*, *Lichen syphiliticus*), including—

' *Syphilide papuleuse ponctuée* ' (Fournier), Bomben-syphilid, Nässende Papel (*Papulae madidantes* or *Breite Condylome*).

3. Das pustulöse Syphilid, including—

Pustulo-krustöse Syphilide, *Framboesia syphilitica*.

He considers them in three groups: ' Oberflächliche pustulöse Syphiliden ' (*Impetigo syphilitica*), ' Tiefgreifende pustulöse Syphiliden ' (*Ecthyma syphiliticum*), and Pustulo-ulzeröses Syphilid.

4. Das tertiäre papulöse Syphilid, including—

Liodermia syphiliticum (Papulo-serpiginöses Syphilid) (Finger), *Psoriasis palmaris and plantaris tertiaria* (*Syphilis palmaris et plantaris cornea*).

5. Das gummöse Syphilid (Knotensyphilid).

6. Das ulzeröse Syphilid, including—

‘ Rhyphia ’ oder ‘ Rupia syphilitica ’, Syphilitische Schmutzflechte, Framboesia syphilitica.

Max Joseph⁴⁹ arranges the syphilides thus :—

SYPHILIS DER HAUT.

A. Das Fleckensyphilid, Roseola syphilitica.

Erythema syphiliticum maculosum.

Erythema syphiliticum papulosum.

B. Die Knötchensyphilide, Syphilis papulosa.

(a) Das grosspapulöse oder lentikulär-papulöse Syphilid.

Syphilis papulosa circinata seu annularis.

Syphilis papulosa Syrata.

Psoriasis palmaris et plantaris.

Condyloma latum.

(b) Das kleinpapulöse oder miliär-papulöse Syphilid.

Lichen syphiliticus, Syphilis corymbosa.

C. Die Pustelsyphilide, Syphilis pustulosa.

(a) Das grosspustulöse Syphilid.

Varicella syphilitica, Impetigo syphilitica, Ecthyma syphiliticum.

(b) Das kleinpustulöse Syphilid—Acne syphilitica.

D. Das Knotensyphilid, Syphilis nodosa, Gummi.

Tubero-serpiginöses Knotensyphilid, Rupia syphilitica, Serpiginöses ulzeröses Syphilid, Framboesia syphilitica, Elephantiasis syphilitica, Erythema nodosum syphiliticum.

E. Pigmentierung der Haut infolge von Syphilis.

(a) Leucoderma syphiliticum.

(b) Pigmentsyphilis.

Finger,⁵⁰ 1908, attempts no formal classification, but considers the syphilides in certain groups :—

Maculöse Syphilide.

Papulöse Syphilide.

Pustulöse Syphilide.

Under the 'Maculöse' he includes Roseola.

Under 'Papulöse' :—

1. Das kleinknötchenförmige Syphilid.
2. Das lenticuläre papulöse Syphilid.
3. Das grosspapulöse, nummuläre, squamöse Syphilid.
4. Das orbiculäre, seborrhoische, papulöse Syphilid.

Under 'Das pustulöse Syphilid' :—

1. Das kleine pustulöse Syphilid—Acne syphilitica.
2. Das blatternähnliche Syphilid—Variola syphilitica.
3. Das grosspustulöse Syphilid—Impetigo, Ecthyma and Rupia syphilitica.

Independently of these groups he describes Erythema multiforme and Nodosa syphiliticum.

Professor Neisser⁵¹ has recently been good enough to give the writer his views on the classification of the skin eruptions in syphilis. He first premises that all syphilitic skin eruptions are produced by the spirochaete. Secondly that the early eruptions show the spirochaete in much larger numbers than the later efflorescences.

Another important point, in his view, is that the reaction of the skin varies with the course of the disease ; the new growth and induration produced in the early period incline to disappear without destruction of tissue, or with slight atrophy ; while the longer the disease has existed the greater the tendency to a breaking-up of the tissues. The typical early appearances are therefore very different from the typical

late ones, although intermediate stages may be seen. A further clinical difference of importance is that in the early period the eruption is abundant and disseminated; in the late, there is a tendency to form groups or circles, and to be less abundant and more localised. Considering these facts, Professor Neisser is inclined to divide the syphilides into three great groups :—

1. The typical early Exanthemata—Roseola, Lenticular-papular syphilides with the papulo-squamous and papulo-impetiginous varieties.

2. Exanthemata which have the early character of appearing over the whole body, and the late characters of showing a grouped arrangement together with a certain tendency to break down.

To these belong :—

- (a) The small papular syphilides, and
- (b) Certain forms of tuberculous syphilides.

He would of course admit in this division all annular, cockade, and grouped erythematous and papular lesions.

3. The third group includes the tubero-ulcerous forms and the pure gummata.

It appears, indeed, to the writer, futile at the present time to attempt to formulate any hard and fast distinctions as sharply differentiating the various forms from one another. It is true, as we have seen, that many of the eruptions—especially the roseolous and papular forms—occur early in the course of the disease, and that the gummatous and ulcerative forms usually show themselves at a much later period; but even from the point of view of time, exceptions are so often met with, that a definite division with regard to the period of their appearance can scarcely be made. A similar remark

will apply to every other clinical or histological character or characters which may be taken as a basis of classification.

In spite of the fact that the literature of syphilis is enormous, and that the existing knowledge of the disease is really very extensive, much yet remains to be learnt. Not only, as we shall see, may a syphilide in whole or in part present clinical and pathological characters, which might entitle it to be placed in more than one of our artificial groups, but lesions are still being recorded which do not exactly fit in the formal classificatory divisions and subdivisions hitherto proposed. It is satisfactory to know at any rate that our field of information is daily enlarging.

The modern tendency, indeed, is to discard all attempts at a rigorous classification, and this has been particularly emphasized since we have come to recognize the patho-histological identity of all syphilides, and since Schaudinn's discovery of the spirochaete as the cause of the disease.

The foregoing resumé of more or less recent views on the subject will indicate the wide differences of opinion which exist among high authorities, not only as to the best way of grouping the various syphilides, but also as to their relationships to one another and to the position which the individual forms should occupy in the main divisions as generally accepted.

From what has been stated, it will be understood that the writers have no intention of presenting in this article anything in the nature of a precise classification of the cutaneous lesions of syphilis. For convenience, however, the various forms may be considered under two great heads: 'The Early Syphilides' and 'The Later Syphilides'. In the former category those eruptions are included which commonly make

34 THE AFFECTIONS OF THE SKIN IN SYPHILIS

their appearance in the skin at a comparatively early period in the course of the disease, viz. the erythematous, papular, vesicular, and pustular, and certain chromatic forms; and in the latter are comprised the tuberos or nodular, gummatous, rupial and ulcerative forms, which are usually met with only at a comparatively late period.

CHAPTER III

THE EARLY SYPHILIDES

THE early syphilides usually manifest themselves on the skin in six to eight weeks after the appearance of the initial lesion, but their development may be retarded, especially by treatment. As will be seen, they may sometimes show themselves at an earlier, and often at a much later date : they have been noted as early as the third or fourth week, and as late as the twenty-ninth week (Bergh ⁵²).

Many of the characters enumerated above as belonging to the syphilides in general, and above all their polymorphism, apply particularly to these early or so-called 'secondary' eruptions ; but, in addition to their relation to the period or stage of the disease, there are several notable points of distinction between these and the late syphilides.

1. The early syphilides are more generally as well as symmetrically distributed over the skin than the later forms. When the rash appears it is usually developed over a large surface of the body, and equally on either side. The spirochaetes, indeed, appear to be at this period disseminated throughout the system, and their effects therefore are more widely exhibited.

2. They are more superficial than the later forms, and show less tendency to ulceration and scarring. The plasma cell infiltration, which is a characteristic anatomical feature of all syphilides, is confined, in the early forms, principally to the papillary and superficial parts of the corium ; in the later eruptions, the infiltration is more extensive and deeper, involv-

36 THE AFFECTIONS OF THE SKIN IN SYPHILIS

ing not only the whole corium but often even the subcutaneous tissues.

3. They develop more quickly than the later forms, and tend to subside more rapidly, and, in fact, spontaneously.

4. Their localisation and development are not much influenced by local conditions, although it has been thought that the frequent early appearance of a rash on the abdomen and trunk is promoted by the warmth of the clothes.

Among the early syphilides will be included :—

1. *The erythematous forms.*

‘Roseola’ and its varieties (macular, wheal-like, circinate, and mottled) and in connexion with this the Leucodermic syphilide.

2. *The papular forms.*

(a) The flat-papular (large and small) psoriatiform syphilide of palm and sole.

Soft papules (flat condylomata).

Pustular and impetiginous papules.

Cupuliform papules.

Corneous papules.

Confluent papules.

Circinate and corymbiform papular syphilides.

(b) The raised papular.

The large elevated papules.

The small follicular or ‘miliary’ papules, disseminated and grouped.

3. *The vesicular and pustular forms.*

Varicelliform and varioliform syphilides.

Acneiform syphilides.

THE ERYTHEMATOUS SYPHILIDES

Synonyms. Roseolous syphilide or syphiloderm ; Syphilitic roseola ; Macular syphilide or syphiloderm ; Exanthematous syphilide ; Erythema syphiliticum maculosum ; Flecken-syphilid.

These were first described by Torella, Fernel, and the other older writers.

Definition. Usually round or ovate, smooth, roseate maculae, not at first perceptibly raised above the surrounding skin, without any sensation of heat or pruritus ; and occurring very early in the course of the disease.

Varieties. Two chief forms are generally recognized : (1) the macular (Roséole), (2) papular or wheal-like (Roseola urticata, Roséole ortiée (Fournier)).

In the former, the spots remain flat ; in the latter, they become slightly raised above the surface of the surrounding skin—reminding one of the appearance of urticarial wheals. The two forms may remain distinct, but they are frequently intermingled in the same subject ; and, moreover, the lesions of the former may pass into those of the latter (Plates XL and XLI, vol. i).

One variety of the common ‘ roseola ’ exhibits a darker or more purplish tint, and each macule may be studded with dark red points, or hyperæmic follicular orifices. According to Taylor, this variety comes out more rapidly, with greater constitutional disturbance, and it is more chronic.

A fourth form is recognized by Fournier, and by all other observers, viz. the ‘ circinate roseola ’. This is comparatively rare, occurring sometimes as a recurrent roseola many months after the first eruption has subsided, or even among the late

sypphilides. When found, it is usually situated upon the face, neck, and shoulders, in the form of distinct reddish rings, which may be imperfect and joined together so as to produce a gyrate or still more elaborate pattern. Occasionally there are rings within rings. This eruption has often been mistaken for *Tinea circinata* (Plate III).

Unna⁵³ includes these with other annular and 'cockade' eruptions, in a distinct class—the neurosyphilides. He maintains that they are a result of a paresis of the blood-vessels induced by a syphilitic affection of the vascular nervous system, and that they differ from other sypphilides in the absence of plasma cells and giant cells, as well as in their form, duration, and resistance to treatment.

The faint rosy mottling, often overlooked and evanescent, which scarcely develops into 'macules', may also be regarded as another variety of the specific roseola (Plate XLI, vol. i).

Size and form of the lesions. In the usual form, the spots vary in size, roughly, from that of a small lentil to that of a threepenny piece; but occasionally they are larger, and sometimes by confluence they may form comparatively large patches. Although generally rounded and distinct in outline, they are sometimes elongated in one diameter, sometimes irregular in shape, and sometimes merge at the margins into the surrounding unaffected skin or into the neighbouring macules. These appearances are particularly to be observed in the faint 'mottled' roseola.

An early macular 'roseola' is depicted in Plate XXXV, vol. ii; the rash has in this case appeared before the initial lesion (on the thumb) has healed. It is a direct-colour photograph (see also Plates XL and XLI, vol. i).

Period of evolution. Hunter especially noted the 'mottled

discolorations ' or ' distinct blotches ' as the first symptom of syphilis in the skin ; but, as we have seen, they were actually recognized by the early writers of the fifteenth and sixteenth centuries. The erythematous syphilides, in fact, are not only usually the first to appear, but they are perhaps the most common of all syphilides, and the most certain to show themselves in any individual who has contracted the disease. As mentioned above, they have been known to appear as early as three or four weeks after the primary lesion, and long before the resolution of the latter ; but, as a general rule, the average period of their exhibition is from five to eight weeks, or, according to Fournier, the forty-fifth day after the chancre : on the other hand, the roseolous syphilide may not show itself until many weeks or even months later, especially when specific treatment has been adopted. In many cases of undoubted syphilis they do not appear at all if treatment has been commenced as soon as possible after infection.

Distribution. The favourite sites of invasion are, first the sides of the trunk, the abdomen, especially about the umbilicus, the chest, except perhaps just over the sternum, the flexor surfaces of the arms and forearms (Plate XXXV, vol. ii), the inner parts of the thighs, and the back : but other parts of the body may become affected, even the face, and especially the forehead, near the scalp, the back and sides of the neck, the palms of the hands, and soles of the feet ; in fact, the eruption may become quite generalized. It may be noted that the backs of the hands are but rarely invaded by this eruption.

When situated in certain parts, its typical character may become altered. Thus, on the palms and soles the macules, or some of them, are often a little raised, like flat papules ; sometimes this becomes slightly scaly, and show small scattered

40 THE AFFECTIONS OF THE SKIN IN SYPHILIS

points of hardened epidermis; on the scrotum and on the back of the neck the eruption is often more 'papular'. In moist situations it may assume the form of flat condylomata (Plates LIII and LIV, vol. i); and at the junctions of mucous membranes with skin, e.g. at the corners of the mouth, about the nostrils, and genital orifices, the lesions usually assume an 'eczematous' appearance with crusted exudation. This may also take place at the junction of the scalp with the skin of the forehead and neck (Plate III). A roseolous rash on the scalp will also be usually accompanied with crusts and followed by patches of alopecia.

Concomitant phenomena. The advent of the rash may be neither accompanied nor preceded by any subjective cutaneous symptoms; and so much is this the case, that, as stated above, its presence on the body is occasionally quite unknown to the patient until his attention has been drawn to the fact by others. On the other hand, there are usually some prior and concurrent phenomena, such as severe headache, especially at night, 'malaise,' extreme pallor, pains resembling those of rheumatism, sore throat, and ulcers on the tonsils, and more or less fever, as well as swelling of the post-cervical, occipital, iliac, epitrochlear, and other glands; papillomata about the perineum, and crusted patches at the angles of the mouth, scalp, &c., may also occur; in short, other evidences of the general syphilitic absorption infection are usually present.

Considerable difference of opinion, especially in reference to the pyrexia, exists among authorities in regard to the relation of these prior and concomitant phenomena to the roseolous eruption. Fournier maintains that they are not prodromata, and that the syphilitic roseola is essentially apyretic; that when the outbreak is accompanied, as he

admits it is sometimes, by a rise of temperature, the latter is comparatively slight and evanescent, and, like the other symptoms which mark the commencement of the secondary stage of the disease, is in no special relation to the exanthem. On the other hand, Sir Jonathan Hutchinson and many others believe that slight malaise and feverishness, the temperature rising every evening, are often experienced before or at the commencement of the eruption. This constitutional disturbance is sometimes very marked ; and, while often in apparent ratio to the extent of the eruption, it is sometimes, as Sir Jonathan Hutchinson remarks, quite out of proportion thereto. Drs. Phillips⁵⁴ and Burney Yeo⁵⁵ recorded remarkable instances of this syphilitic fever occurring just before the rash, and, more recently, many instances have been observed in which the pyrexia has been severe, and sometimes of typhoid character.

According to Lang, as we have seen, there is not infrequently an 'invasion' fever, as well as an 'eruption' fever, the former lasting from two to four days.

Course of development. The roseolous syphilide usually develops slowly and progressively ; small pink or rosy spots first appearing, which gradually become darker and more obvious, while their number is increased by the eruption of fresh spots between and among the older ones. At any one time, therefore, the eruption will exhibit spots of varying age in various stages of evolution (Plate II). The rash is rarely 'well out', or has attained to its full development, under from a week to two or three weeks ; but extremes of heat and cold, or other circumstances leading to capillary congestion, may cause a rapid and general eruption. A hot bath has been known to bring it out within a few hours. In some parts, as on the

trunk, the spots may be so closely packed as to become confluent, but, as a rule, they remain discrete, and on the limbs they always do so. At this stage—which is little more than a condition of localised areas of hyperaemia—the redness disappears on pressure ; but later on a yellowish or darker stain persists.

Resolution. After existing for a variable time—a few days, a few weeks, or several months—the eruption will gradually fade away and disappear. The pale pink spots are particularly prone to disappear early, and the violaceous to persist long. The spots rarely keep their original colour throughout their existence ; the tint very generally darkens and, later, assumes a yellowish or brownish, or sometimes the much talked of ‘raw-ham’ hue. The change in tint takes place gradually, and it may be quite complete in a few days or a week. A faint yellowish-brown pigmentation may be left on the sites of the spots for some weeks after all erythema has passed away, but this gradually fades. Occasionally, more or less desquamation is to be observed during the resolution of the macules (Plate II).

HISTOLOGY OF THE ROSEOLOUS MACULE

Besiadecki,⁵⁶ Kaposi,⁵⁷ Neumann,⁵⁸ Crocker, and Unna, have published observations upon the microscopical anatomy of the erythematous syphilide. There is a general agreement among all observers that there is a distinct hyperaemia, with some effusion into the neighbouring tissues ; the arterioles and capillaries become more or less dilated, and surrounded with plasma cells and lymphocytes. The changes are chiefly in the papillary layer of the corium, the papillae being flattened, and the fibrous tissue elements separated by the exudation. The vessels themselves show evidence of inflammation, round and spindle cells being seen in the adventitia (Besiadecki and

Crocker), as well as endothelial proliferation and collections of cells within the lumen. In some instances probably in older maculae, the changes are to be observed more deeply in the corium, the cell accumulation appearing around the hair follicles, sebaceous and sudoriparous glands (Neumann).

The epidermis at first shows no change, but in the older maculae the cells of the stratum mucosum may become altered and separated by effusion, while the superficial layers are raised up and desquamate (Plate XXI, vol. i).

Spirochaetes have been found by Veillon and Gerard,⁵⁹ Richards and Hunt,⁶⁰ and others, in the blood and in the dilated vessels of an erythematous syphilide, and they have also been demonstrated among the surrounding cells and in artificially produced blisters.

CHROMATIC SYPHILIDES

Alterations in the pigmentation of the skin as the result of previous syphilitic eruptions have been recognized from very early times ; but it was not until Hardy especially studied the question in 1853 that any particular attention was directed to the fact that chromatic changes were sometimes to be observed without any very obvious pre-existing lesion, and at a comparatively early period of the disease.

That authority described a ' pigmentary syphilide ' which he believed appeared from the fourth to the twelfth month after the primary sore, and consisted of dark and light spots, the former approaching the colour of ' café au lait ', and the latter being whiter than the normal skin (Plate LV, vol. i). He considered it due to an irregular deposition of pigment, which was excessively abundant in the dark, and less than usual in the white patches. These discolorations only occurred in syphilitic

patients with delicate thin skins, chiefly around the neck and shoulders, and were very rarely seen in men. They seemed to be uninfluenced by treatment ; and on this account Bazin and others doubted their syphilitic nature. Prof. Fournier regarded the abnormal condition as a ' parasymphilitic ' lesion, and he demonstrated by the ' card ' method that in some cases the non-pigmented spots were not really achromatic, but that they only appeared to be paler by contrast with the juxta-imposed darkened surrounding skin.

Within the last few years the subject has attracted a considerable amount of attention, and many different views have been published.

Following Hardy and Prof. Fournier, Prof. Unna and several other writers consider that the dyschromia in these cases is independent of any other eruption ; while others regard it as secondary to an evanescent roseola, or even to a pre-existing papular syphilide.

Professor Unna believes that these early ' primary ' pigmentary syphilides are independent of and not consequent on, or occupying the sites of, previous macules or papules. He regards them as ' neurosyphilides ' ; and maintains that they appear in two forms, either as brown spots of the size of his circulatory ' plane elements ', or more commonly as diffuse smoky pigmentations, which clear up in the region of the ' plane elements ', and thus secondarily bring into view the retiform pigmentation.

Prof. Gaucher⁶¹ describes several distinct forms of pigmentary syphilide, which he places under two heads :—

1. True pigmentary syphilide.

- (a) Macular, following a macular roseola.

- (b) Areolar, following an annular roseola.

The last is the pigmentary syphilide particularly referred to by Hardy and Prof. Fournier, and is the 'retiform' variety most commonly observed.

2. Peri- and post-papular leuco-melanoderma, which consists of (1) depigmented spots occupying the site of previous papules, and (2) hyperpigmented areas surrounding the depigmented 'post-eruptive' macules.

Here may be mentioned an ingenious theory lately put forward by Sir Jonathan Hutchinson,⁶² who points out the analogy of the early syphilitic dyschromia with the 'dappled' coloration of certain animals, and suggests 'that the peculiar patterns evolved in cases of this affection are physiological, and due to original organization and not to disease', and that 'in secondary syphilis, disordered function of the suprarenal and other organs favours the accumulation of melanin in the cells, and that, finally, exposure to light brings about its deposition in unprotected parts'. As Sir Jonathan says, we may thus explain the preference of the malady for the female sex, and for the neck and bust, and its tendency to persist.

There has been, however, of late years, an increasing tendency to regard all leucodermic syphilides as developments of a preceding roseola. That it is possible for a generalized pigmentary syphilide to arise *sui generis* may be admitted, but it is undoubtedly rare. On Plates IV and V will be found an illustration of such a case. The leucodermic syphilide of the neck, on the other hand, is quite common, and only needs to be sought for to be found. Professor Neisser⁶³ has found the condition in 45 per cent. of female syphilitics and in 42 per cent. of male. Haslund⁶⁴ has given an even larger percentage—65 per cent. in women and 31 per cent. in men. The whole question

has been discussed by Arthur Shillitoe in an able manner on pages 268 to 272 of the first volume of the present work, and it may perhaps be permissible to quote from his remarks, which, in the main, confirm the observations of Hullen.⁶⁵ In fifty consecutive cases of syphilis observed by Shillitoe, which included cases in all stages of the disorder, no less than thirty-seven, or nearly 75 per cent., exhibited the leucodermic syphilide, and as nine of the cases that did not show it were in a very early stage, chancres and indurated glands alone being present, probably the true percentage was higher. There was some tendency for dark patients to be affected more than fair. The condition is much rarer in men than in women.

Two well-marked forms are described :—

1. A well-marked broad band of pigmentation extending round the neck—the collar of Venus; this was found seven times in the thirty-seven cases (Plate LV, vol. i).

2. Leucodermic patches surrounded by a network of pigmentation—found thirty times in thirty-seven cases.

The pigmentation begins and is most pronounced at the back of the neck and may extend towards the axillae. By means of observations with a cobalt-blue glass Shillitoe was able to show that roseola of the neck, often very fugitive, is not an uncommon symptom. Further that the elements of a syphilitic eruption clear up from the periphery to the centre, and, after the formation of the pigmentary network, a pigmented dot marking this latter point often may be seen in the centre of the achromic spot which occupies the site of the original roseolous macule. Thence it follows, as had been previously stated by Hullen, that the achromic spot is the chief part of the lesion, i. e. that which causes its variation in form, and the achromic spots are the remains of a roseola (or other

secondary syphilide) preserving the site, the form, and the dimensions of the lesions which have given birth to them. The single pigmented dot which is often seen in the centre of the achromic spot is the residual pigment left by the previous roseolous macule, while the remainder of the roseolous macule becomes depigmented.

The explanation of the increased pigment which is undoubtedly met with in the brown network is not so satisfactory. Theories of a protective formation of pigment and of derangement of the suprarenal glands have been advanced, but with little real evidence to support them. There has, too, been much discussion as to whether the pigment is haematogenous in origin or a product of cellular activity. One author, Ehrmann,⁶⁶ has tried to show the existence of special pigment-producing cells, which he calls melanoblasts; all pigmentary anomalies he ascribes to disturbances of their functions. Brandweiner,⁶⁷ who has studied the whole subject of syphilitic leucoderma from a clinical as well as a histological standpoint, has been able to obtain biopsies of five cases. As he points out incidentally, he was unable to get more owing to the fact that the eruption is, as a rule, found on the necks of young women. He finds that in the achromic spots the pigment only disappears from the basal and reticular layers, while it persists in the cutis. He did not find any cells which could be identified with the melanoblasts of Ehrmann. The provisional explanation which Brandweiner gives of the whole clinical picture is that the inflammatory process due to the presence of the roseola if marked, deprives the basal cells of their pigment-producing power, hence the depigmentation on the sites of the eruption, while where the inflammation is not so intense the pigmentary power is increased.

THE PAPULAR SYPHILIDES

Synonyms. Syphiloderma papulosum, Syphilitic lichen, Syphilitic psoriasis, Syphiloderma tuberculatum disseminatum, Tubercula lentiformia (Wilson), Syphilis papulosa, Knötchen-syphilid, &c.

The early writers, even as late as the end of the eighteenth century, spoke of these lesions as syphilitic 'pustules'. The expression 'papular' was first applied to them by Carmichael.

Definition. Raised, solid papules, from the size of a millet seed to that of a sixpence or larger, reddish brown in colour, with scanty desquamation, apruritic, and slow in resolution. Generally appearing rather later than the erythematous syphilide.

These eruptions are very common in syphilitic patients, especially in untreated cases. According to Fournier, they are more often seen in women than in men affected with the disease.

The essential element in this group of syphilides is the papule, a small localised elevation of the true skin, of rounded outline, solid and resistant to the touch, non-exudative, but often with more or less desquamation. The papules are distinctly raised above the surface of the surrounding skin, as can be easily seen as well as felt by the observer's finger. They generally remain discrete (Plate XLII, vol. i).

As will be seen, many forms have a slightly convex surface, others are flattened and sometimes slightly depressed in the centre, while others again are more conical or acuminate. They often develop scales, which may become detached in the centre, and leave a more persistent ring or collar around the

base as first noted by Biett (quoted by Martins, loc. cit.). Although at first of a lighter tint, they exhibit perhaps more often than the other syphilides the characteristic 'raw-ham' and 'coppery' colour.

Distribution. They are generally abundantly and symmetrically scattered, especially over the flexor surfaces of the body and limbs, as well as on the face and scalp, and they may appear everywhere. The various forms of the papular syphilide are often to be seen in the forehead and temples, bordering on the scalp, and when the eruption is in this position, the ancient term 'corona veneris' is sometimes applied to it.

The papules are sometimes arranged in groups and in circles; and in certain positions, where the integument is kept moist by perspiration and apposition of surfaces, e.g. about the genitals, anus, axillae, &c.; they often take the form of flat condylomata (Plates LIII and LIV, vol. i): this is particularly observed in the flat papular varieties. At the angles of the mouth, and of the alae nasi, they may form cracks or fissures, and become crusted.

The papules are formed either in connexion with the hair follicles and sweat ducts, or independently. In the former case, they are individually small and tend to be acuminate in form; in the latter, they are flatter and may be much more extended in surface.

The papular syphilide often follows a previous roseola, or the papules may be developed from, or upon the sites of, the roseolous maculae; or, on the other hand, they may constitute the first specific eruption to be observed in the case.

Although these papular syphilides frequently remain more or less 'true', i.e. that the majority of the lesions are of the same type, viz. papules, they resemble all other early

sypilitic eruptions in the frequent admixture with them of other types of syphilides, viz. erythematous macules (Plate II), vesicles (Plate XLIII, vol. i), pustules (Plates XLIV and XLV, vol. i), crusts, &c. Certain papules, moreover, may themselves become vesicular and pustular, as well as scaly. They are also commonly seen on the subject in various stages of development, for new crops appear as long as the eruption lasts.

HISTOLOGY OF THE PAPULAR SYPHILIDE

A section of an early papule shows a dense cellular infiltration chiefly around the vessels which are situated in the papillary layer of the corium. In the very young papules the cells seem to be mainly leucocytes, but in the older ones the new cell-growth consists almost entirely of plasma cells. The deeper vessels of the corium and those around the papule are but little affected, so that the papule appears circumscribed or sharply differentiated from the neighbouring tissue; but in the larger papules a larger portion of the corium becomes involved, and the deeper vascular plexus of the latter also shows the perivascular cell invasion. The new cell-growth soon occupies the perivascular lymph spaces, and extends between the fibres of the neighbouring connective tissue, as well as into the adventitia of the vessels, which at the same time show evidences of peri- and endo-arteritis. The plasma cell collections can be seen also in connexion with the sudoriparous glands and hair follicles, which are especially affected, in the case of the follicular syphilide.

After a time the papule appears to be made up chiefly of vascular 'plasmomata' in a fibrous mesh. Among the cells of this new growth, giant cells are frequently to be seen;

these Unna considers to be developed from the coalescence of multinuclear plasma cells of smaller size.

At first the epidermis over the papule is but little affected, but owing to the subjacent inflammation, secondary changes may soon occur. There may be flattening from pressure and disappearance of the papillary ridges, leucocytes may extend into the Malpighian layer, and there may be swelling and degeneration of the epithelial cells, and more or less desquamation.

There is, however, no marked acanthosis, para- or hyperkeratosis, as there is in the psoriasis and lichen papule; a fact, in conjunction with the perivascular plasma cell collections, that ought at once to differentiate the papular syphilide from these latter.

Varieties. As may be surmised from the above remarks, the papular syphilide exhibits many varieties, differing not only in the size and form of the lesions, and in their development around the hair follicles or otherwise, but also in the relative amount of the subsequent scaliness, &c.

Professor Fournier classifies these papular syphilides clinically under four heads:—

1. Syphilide papuleuse.
2. Syphilide papulo-squameuse.
3. Syphilide papulo-croûteuse.
4. Syphilide papulo-érosive.

We may consider the last three as mere varieties which commence as papules, with subsequent development respectively of scales, exudation, and crusts. It may also be remarked that as more or less desquamation so frequently takes place in the papular syphilide, it seems hardly necessary to consider the 'papulo-squamous' as a distinct variety (Plate II).

We shall here describe them under the following heads :—

A. The Flat Papular Syphilides, including (1) a *large* or *nummular*, and (2) a *small* or *lenticular* form.

B. The Raised Papular Syphilides, including (1) a *large*, and (2) a *small* or *miliary* form.

There is considerable confusion in the nomenclature of these papular syphilides. The term 'lenticular', for instance, is variously applied :—

(a) to the whole group of flat papular syphilides,

(b) to the large flat papular syphilides, and

(c) to the small flat papular syphilides.

Signifying, as it does, 'like a lentil,' it is obviously most properly employed to designate the small flat variety ; and in this sense the term was originally used by the elder Cullerier and subsequent French writers, as well as by Berkeley Hill and other British and American syphilographers. As observed by Bassereau, the 'lenticular' papule ought to have the shape and approximate diameter of a lentil, i. e. from 4 mm. to 6 mm.

THE LARGE FLAT PAPULAR, OR NUMMULAR, SYPHILIDE

Synonyms. 'Large flat,' 'lenticular,' 'nummular' syphilide. This eruption may occur very early in a case of syphilis ; within two months from the initial sclerosis, and often before the earlier roseolous spots have faded.

The individual papules are comparatively flat, rounded discs, measuring from 8 mm. to 20 mm. or more in diameter, and are of a dark reddish-brown colour. The smaller ones have been called 'lenticular', the larger 'nummular'. Rarely, some of them may depart from the typical discoid form and become oval, or even kidney-shaped or crescentic. They

first appear as small red spots, which soon increase in size, become raised and darken in colour; more often than the small flat papules, they may become depressed in the centre. Although a certain amount of scaliness is very soon developed upon the papule, the scales fall early, and the greater part of the surface appears smooth and denuded; the scales, indeed, are always scanty and deciduous, never persistent, and are greyish in colour. The larger papules are always more sparsely scattered than the smaller; and when only the large nummular syphilide is present, the papules may be scanty; often but very few of the individual lesions are to be seen on the patient's skin. On the other hand, they may be numerous; but in this case they are rarely closely crowded together.

The large papular syphilide may be found in almost any situation, but it is most frequently seen on the face (Plate VI), especially on the forehead and temples near the scalp, around the nose and mouth and on the back of the neck, upon the bends of the elbows and knees, and on the inner part of the thighs.

Unless treated, this syphilide may remain without change for many months. When it finally resolves, it leaves a greyish-brown stain, which also ultimately disappears.

Occasionally the large papules become more salient, approaching in form and appearance the later 'tubercular' or 'nodular' syphilide.

As with the other papular syphilides, other syphilitic eruptions—maculae, pustules, &c.—may coexist with this form; but comparatively, perhaps, to a less extent. The large papules may also be accompanied by the smaller varieties.

M. Fournier considers that this form is particularly liable to recur, and in the writers' experience it is very likely to be followed by early manifestations of the late syphilides.

THE SMALL FLAT PAPULAR OR LENTICULAR SYPHILIDE

Synonyms. 'Papulo-squamous,' 'syphilitic psoriasis,' 'nummular,' 'lenticular' syphilide, &c.

Definition. Flat papules, averaging from 3 to 6 mm. in diameter, or slightly larger, reddish-brown in colour, copiously disseminated, and often becoming covered with thin greyish scales.

The papules in this form have a greater resemblance to lentils, in form and size, than the larger or nummular variety; they differ also in their more abundant distribution, and in their greater tendency to develop scales. The colour of the papules is at first bright red, soon assuming the brownish 'raw-ham' tint, and gradually becoming lighter and more 'coppery'; sometimes, especially on the legs, they have a purplish hue. Sensations of itching are generally absent, although occasionally experienced to a slight extent towards the decline of the eruption.

They are commonly seen upon the back and shoulders, on the back of the neck, on the face—especially on the forehead and near the mouth and nose—the sides of the trunk, the abdomen, the chest (Plate XLIII, vol. i), the inner surfaces of the arms and forearms (Plate VII), as well as often on the palms of the hands, the soles of the feet, the buttocks and thighs, on the penis, and about the pubes; in point of fact, any part of the body may be affected. They are not infrequently mingled with erythematous macules (Plate II), as well as with the larger papules; pustules and vesicles, &c. (Plate XLIII, vol. i), may also be found among them. Near the alae nasi and at the angles of the mouth, they may, like the larger papules, be changed into crusted fissures; they may also develop into

crusted, eczema-like lesions between the toes. The scaliness is always slight at first, but it may gradually increase, and much of it then desquamates, often leaving the surrounding epidermic fringe or collar as spoken of above ; or the scales may be more abundant and persistent, justifying the name 'papulo-squamous' (Plate II). Occasionally these scales are so obvious and so thickly formed, that the papule really resembles a small patch of psoriasis : this, in the writers' experience, is rare. Smooth and squamous forms are frequently found together, as well as papules in all stages of growth and development.

Their size sometimes approaches that of the larger variety, and if it were not for their greater scaliness and their more crowded distribution, they might then come under either category.

The papules, although closely packed together, usually remain discrete ; but in some positions especially, they may become confluent and form comparatively large areas or patches of reddish-brown efflorescence. This is sometimes observed on the perineum and neighbouring parts—pubes, inner parts of thighs, &c., especially in the female, and also about the lower part of the face. This confluent form constitutes the 'syphilide papuleuse en nappe' of Fournier and others. In these cases, there are always to be observed at the same time typical papules in the immediate neighbourhood and elsewhere.

More commonly, papular eruptions about the anus, perineum, vulva, and scrotum, assume a condylomatous or moist papular form, the 'papulo-érosive' of Fournier (Plates LIII and LIV, vol. i).

Papules developed upon the scalp, as a rule, soon become covered with crusts, the 'papulo-croûteuse' of Fournier.

The course of this syphilide is always chronic, and, without treatment, the eruption may remain with little change for many months; crops of fresh papules successively appear, while the older ones are slowly retrogressing. Ultimately, they all disappear, leaving light brownish or greyish-yellow stains, which in time gradually fade away.

The onset of the papular syphilides is usually unaccompanied by fever, but occasionally there is well-marked pyrexia. Fournier quotes a case occurring in Millard's practice in which the symptoms were so severe that it was thought to be one of typhoid, until the appearance of a typical papular syphilide cleared up the diagnosis.

Varieties. Many varieties of the flat papular syphilides have been described, and some of them have been alluded to above in the description of the large and small papules. Their distinctive characters are based either upon the form of the individual lesions, the development upon them of scales, crusts, or exudation, or the arrangement or grouping of the papules.

The principal varieties that have been described are :—

1. The squamous papular syphilide (Plate II).
2. The pustular or crusted (Plate XLV, vol. i).
3. The moist or erosive.
4. The cupuliform.
5. The corneous.
6. The confluent.
7. The circinate (Plate III).
8. The corymbiform.

1. The papulo-squamous syphilide, in its disseminated form, has been sufficiently described above; but when situated, as it frequently is, on the palms of the hands and soles of the feet, its form and appearance become altered, and in these

positions, the eruption may be the more readily mistaken for a simple palmar or plantar eczema or psoriasis. It is, indeed, in this situation, commonly called 'syphilitic psoriasis'—psoriatiform syphilide—of the palms and soles. The differences observed between this form and the previously mentioned papulo-squamous syphilides are no doubt due to the anatomical structure of the parts, and especially to the very thick and dense epidermis there existing.

The lesions are usually observed as rounded macules, at first small, rosy in colour—soon becoming larger and darker in colour, very little raised above the surface, but distinctly to be felt as thickenings in the integument. Desquamation soon appears, the surface being denuded irregularly, but leaving a surrounding collar of elevated scales; this scaling is very characteristic. In size, the spots may vary from the diameter of a lentil to that of a sixpence, and may be scattered irregularly over the palms or soles as the case may be, but are found more often in the middle of the palm and sometimes also on the flexor surfaces of the digits. The consistence has been likened in some cases to that of thick parchment, and sometimes the efflorescence exists in the form of small hard and horny masses—constituting the so-called 'corneous' variety. The distribution is usually symmetrical, thus differing from that of the squamous palmar syphilide occurring in the later stages of the disease.

Occasionally they form by confluence large irregular patches, dry and rough to the touch ('Psoriasis en nappe'), or they may be arranged in a circular manner ('Psoriasis circiné') with the papules either discrete or confluent; but these forms do not usually appear among the early syphilides.

Upon the palms of the hands painful rhagades or cracks

may be developed upon these confluent patches, increasing the resemblance to chronic eczema of the palms.

These palmar and plantar papular syphilides are not pruritic. They are often lasting and very obstinate to treatment ; they are also apt to recur.

They are distinguished from true *psoriasis palmaris* by their less abundant or persistent scaliness, by their colour and the regularity of size of the papules, as well as by the usual concurrence of erythematous macules and other symptoms of syphilis elsewhere. The differential diagnosis is not so easy when they form large irregular patches, and if no other syphilitic lesions are present. The presence of the small corneous lesions is quite diagnostic.

The palmar and plantar syphilides are furthermore differentiated from eczema :—

- (a) By the absence of itching.
- (b) The absence of exudation.
- (c) Their more central situation—not spreading in from the wrist or fingers.

2. The pustular papular syphilide, which has been already alluded to, usually occurs early in the course of the disease. It is developed upon the scalp and hairy parts, as well as at the angles of the mouth, about the nostrils, and in the angles between the nose and cheeks, and between the digits. At first the lesions are simply papular, but an exudation drying into brownish crusts is soon produced, coming from an eroded surface or from cracks into the substance. It is highly probable that this purulent development is the result of extraneous staphylococcic inoculation. There is sometimes accompanying itching, and the crusted exudation may be so abundant that the eruption is frequently taken for an impetiginous eczema.

The lesions coming under this category cannot easily be differentiated from those described below as 'pustular' or 'pustulo-crusted' syphilides.

3. The soft, moist, or 'erosive papule', is really a condyloma. It is the form naturally assumed by a papule developed in a moist situation—about the anus, perineum, testicles, vulva, axillae, submammary folds, &c. Instead of remaining dry and forming scales, the epidermis becomes sodden, easily rubbed off, and exuding. Very rarely, similar soft condylomatous papules become more generalized, but it is probable that some of the cases so described were really cases of Pemphigus vegetans, or other diseases of the skin.

4. The 'cupuliform' papule is one presenting a much-raised border and a deep central depression. It is occasionally observed among the papules of the large type. The depressed centre may be of a much darker colour than the raised margin.

5. The 'corneous' papule occurs with the papulo-squamous and sometimes with an erythematous syphilide of the palm. Corneous papules consist of small circumscribed hard and whitish masses of hypertrophied epidermis embedded in the skin of the palm, from which they can be removed or picked out. They are usually few in number, and are sometimes painful on pressure.

6. The confluent variety is generally seen around the genitals, upon the pubes, perineum, inner part of the thighs, and gluteal regions, and also not infrequently on the lower part of the face; rarely elsewhere. The individual papules are in these instances closely packed and merged together, and the resulting surface gives a brawny or parchment-like sensation to the touch.

7 and 8. The terms 'circinate' and 'corymbiform' refer

to the arrangement of the papules. In the former, the eruption comes out in circles or segments of circles, in the latter in more or less isolated groups. Both the large and the smaller papules may be so arranged, but the circinate syphilide is more often composed of the small or lenticular lesions. These latter may either remain discrete in the circle, or they may become confluent and form a homogeneous or uninterrupted ring. This annular formation is rare, but when it does occur its usual position is on the face (Plate III)—on the cheeks, forehead, and near the mouth, and on the neck and shoulders. A circinate papular syphilide may also occur on the palm of the hand.

As mentioned above, Unna regards these annular or circinate syphilides—both when raised or papular and when simply erythematous—as forming a distinct class, viz. the ‘neuro-syphilides’.

They appear to be far more commonly seen on the face among the black races than in Europeans.

According to some authorities, the annular syphilide may sometimes be developed from a single large papule, the centre of which has cleared up while the raised margin has remained.

The ‘corymbiform’ syphilides consist of papules in groups. The expression ‘corymbosus’ appears to have been first employed by Erasmus Wilson for papules which ‘are grouped in clusters’, as their disposition in this manner suggested to him ‘the idea of clusters of fruit’; he figures both the small and the large papules so arranged, under the names *Lichen corymbosus* and *Tubercula corymbosa*. Many authors have since then used the term ‘corymbiform’ in a similar sense; but others limit it to those cases in which a number of small papules are grouped around a much larger one—to use

Fournier's simile—like planets or satellites around a sun. The derivation of the word is admittedly botanical; and as in botany the 'corymb' is an 'indefinite' inflorescence with no large or old central flower, the latter use of the term is obviously inaccurate.

The grouped syphilides are rarely seen at an early period of the so-called 'secondary' stage of the disease; indeed, they are most frequently observed as recurrent eruptions, and sometimes quite late in the 'tertiary' period. Some authors, indeed (e. g. Gaucher⁶⁸) regard them as 'tertiary' syphilides, while others (Hardy, Hutchinson, Neisser, &c.) place them among the 'intermediate' syphilides.

As the papules in these grouped forms are frequently of the conical type, they will be further considered in the next section.

THE RAISED PAPULAR SYPHILIDES

Synonyms. Conical papular syphilide, Miliary syphilide, Syphilitic lichen, Follicular syphiloderm, Syphilide papulogranuleuse, S. papuleuse miliaire.

In this eruption the lesions consist of definitely raised, conical or more or less globular, papules, from the size of a pin's-head to a millet seed, i. e. from 1 or 2 mm. to 3 or 4 mm. in diameter. They are really 'follicular' or developed about the orifices of the sebaceous and hair follicles and sweat ducts. At first of a bright pink or rosy colour, they usually become more dusky or reddish-brown.

They are generally widely distributed over the body, especially on the face and neck, the back, the buttocks, and extensor surfaces of the arms and thighs; but they may also appear abundantly in other situations and become practically universal. The more generalized distribution is especially

noticed when the eruption shows itself early or appears as the first cutaneous manifestation of the disease.

The individual papules are usually very abundant and closely placed together ; but when appearing late, or as relapses, they are less diffusely scattered, and are often seen in groups ; sometimes the individual papules are arranged in an irregular semi-circle or even in an annular manner.

When first erupted, the papules are simple, conical or shot-like, and of firm consistence ; but very often they subsequently become scaly at the apex, or they may develop a small apical vesicle or pustule (Plates XLIII and XLV, vol. i) : the older ones also sometimes exhibit a tendency to central umbilication, and often an epidermic collarette formation is to be observed around the base.

As with the other papular syphilides, papules in various stages of growth are to be seen simultaneously, owing to the development of successive crops. The rash may come out very rapidly like an acute eruption, and be extensively distributed over large areas in a few days ; but more commonly it does not attain to its full development under a fortnight. It may then, unless treated, remain for a considerable time, and will then disappear slowly in perhaps two or three months. Pigmentation persists for some time afterwards ; and, if there has been pustulation, small pitted scars are left.

Flat papules, large or small, pustules, &c., are not infrequently, although sparsely, intermingled among the papules of this variety ; and the 'corymbiform' arrangement is more often constituted in this manner than by a number of small flat papules around a larger one. The 'grouped' arrangement, indeed, is more common with follicular papular elements than with the flat papules.

The elevated papular syphilide presents itself in two principal forms, a large and a small; but both of these, in varying proportions and in intermediate sizes, may coexist in the same subject.

THE LARGE ELEVATED PAPULES

The papules in this form are about 2 or 3 mm. in diameter, raised and shotty to the touch, often bearing an apical scale or crust; they are sometimes pustular and sometimes umbilicated. At first of a bright reddish colour, the eruption soon becomes of a browner tint.

They are usually less closely crowded together than the smaller variety, and are more frequently seen in groups or aggregations—which, when occurring late or in relapsing eruptions, may assume a corymbiform arrangement—as well as in rings or segments of circles. The favourite positions seem to be the face (Plate VI), back of the neck and shoulders, the lumbar and gluteal regions, and the extensor surfaces of the limbs; but they are also frequently more generalized, and sometimes appear over every part of the body.

THE SMALL FOLLICULAR OR MILIARY SYPHILIDE

(SYPHILIDE PAPULEUSE PONCTUÉE OU MILIAIRE)

This syphilide is by no means common. It is said to be particularly rare among males, although in the course of the last three years there have been at St. Bartholomew's Hospital three cases all among males and not a single example among the females. It generally occurs as a relapse manifestation, a long time after infection, and in cachectic individuals; it is seldom seen in the early stages of an attack. The papules are

pin-head in size, and more widely distributed over the body than the larger form. Their chief characteristic, however, is that they are set closely together in small groups and patches very similar to the arrangement found in *Lichen scrofulosorum*. In colour it is of a lighter tint than the more usual varieties of papular syphilide and its evolution is more rapid, hence it is sometimes known as the 'acute papular syphilide'. The parts principally affected are the back of the neck, the shoulders, the back, outer part of the arms, thighs, and legs ; and sometimes it is practically universal. As a rule all the follicles of the parts upon which they are situated appear to be affected, giving a 'goose-skin' sensation to the touch. Each papule may be surmounted by a tiny scale ; in fact, Gaucher and Louste⁶⁹ have described a form with very small and hard papules, resembling Keratosis pilaris, under the name 'syphilide papuleuse miliaire kératosique'.

Occasionally a few small pustular and other lesions are found associated with this eruption. Another point in which this form of syphilide differs from most others is in its extreme resistance to treatment. Two of the cases at St. Bartholomew's have now been watched for about a year and scarcely any change has taken place in them.

CHAPTER IV

THE RARER FORMS OF EARLY SYPHILIDES

IN this chapter we shall discuss the following forms :—

1. The vesicular.
2. The pustular.
3. The ecthymatous.
4. The bullous.
5. The squamous.

All these forms have this in common, that they are developed as modifications of the papular.

1. VESICULAR SYPHILIDES

Synonyms. Syphiloderma vesiculosum, Syphilide herpétique, Syphilide eczémateuse, Syphiloderma eczematosum.

Definition. An eruption of vesicles, or of small papules which develop vesicles, that burst, form small crusts or dry up, and leave brown stains.

The existence of a true vesicular syphilide is doubted by many authorities, and, indeed, is hardly referred to by recent German authors. A pure eruption of the kind is, at any rate, so rare in syphilis that it has been suggested (Stelwagon⁷⁰) that when it does occur it may be due to the action of a drug. That it is a true syphilide is, however, admitted by many competent observers, e.g. Fournier ('Leçons'), Sir Jonathan Hutchinson, Dr. Crocker, Duhring,⁷¹ White,⁷² and several other modern writers, as well as by the older French authors,

Cazenave, Bazin, Bassereau, Hardy, &c., the last of whom drew especial attention to the occasional occurrence of vesicles in syphilis. Cazenave claims to have published, in conjunction with Schedell, the first case on record of a vesicular syphilide.

There is no doubt that it is very rare for the whole of a syphilitic efflorescence to consist of pure vesicles, although we may not infrequently find a certain number of vesicular lesions mingled with a small papular syphilide (Plate XLIII, vol. i), as well as among the pustules of an undoubted pustular syphilide. In the latter case, the vesicles may be regarded as constituting an intermediate stage of the pustules, for the contents of the vesicles soon change from a comparatively clear serous to a cloudy purulent liquid. It is further generally admitted that in all these cases the vesicles arise upon a red raised base, i. e. a papule. In fact, some authors (e. g. Unna) class the so-called 'varicelliform' as well as the 'varioliform' syphilide among the 'papular' forms.

Cazenave described three forms of vesicular syphilides: the 'Varicelliform', the 'Eczematous', and the 'Herpetiform', and these varieties have been practically admitted by most of the subsequent French writers. Bazin considered the 'eczematous' form a circumscribed 'papulo-vesicular syphilide', but thought that the varicelliform and the herpetiform were truly vesicular. Bassereau gave a good description of the three varieties, and added another form, 'Syphilide vésiculeuse à base papuleuse'.

A fuller account of vesicular syphilides was presented by Hardy, who accepted three varieties.

1. Syphilide vésiculeuse varioliforme.
2. Syphilide vésiculeuse eczémateuse.
3. Syphilide vésiculeuse herpétiforme.

He regarded the first as the least uncommon, and placed it among his 'Syphilides précoces', as in his experience it appeared within the first six months of the disease.

Of the Vesicular syphilides, adopting Fournier's classification, the following will be recognized in this article :—

1. *The small vesicular* and
2. *The herpetiform syphilide*.

Two forms of the *small vesicular* syphilide have been described, the first being the rare efflorescence first described by Cazenave, Bassereau, Hardy, and others, under the name 'Syphilide eczémateuse'.

Berkeley Hill, more recently, has recorded a case carefully watched by him. The eruption consisted of minute flattened vesicles on a bright red area, that itched and tingled at night. The patches first appeared on the wrists, ankles, and soles, but afterwards spread in scattered groups. In six weeks the vesicles and red areas had disappeared, but unmistakable syphilitic lenticular papules were to be seen in their stead on the arms and legs.

This eruption differs from true eczema in that the vesicles are formed on a papular base; they do not burst or exude, but show a tendency to dry up. The eruption is also more lasting and less pruriginous. Sometimes its course is more rapid, the vesicles becoming purulent and crusting; the crusts, however, do not become confluent as in eczema.

In the second form, as described by Fournier and designated by him 'Syphilide herpétiforme', the vesicles are extremely small and numerous. They are sometimes scattered, more rarely arranged in circles, and are generally situated on the trunk and limbs, but never in his experience on the face, the hands, or feet. This form occurs during the first and

second years after infection, and is commoner among females than among males.

The Herpetiform syphilide. Two forms of the true herpetiform syphilide may be considered. The vesicles in both are comparatively large—of the size of a pea—and occurring in groups. The first resembles phlyctenular herpes, but there is always a dark red base, and the patches are symmetrically placed; the vesicles, moreover, are more persistent than those of ordinary herpes, and more prone to leave cicatrices.

This eruption is also very rare, but its occurrence on the face has been noted by Berkeley Hill, and its existence is admitted by Crocker and others.

The vesicles in about eight days burst or dry up, leaving scales or crusts on a persistent brownish base. The vesicles are sometimes confluent and occasionally occur in rings.

The second variety of herpetiform syphilide is perhaps still more rare. It was first described by Sir Jonathan Hutchinson,⁷³ who called it 'Syphilitic shingles', and had seen three or four examples.

It differs from true Herpes zoster in being 'always symmetrical, seldom limited to the chest, and in not disappearing nearly so quickly'. Dr. Radcliffe Crocker mentions similar cases. One of the writers (P. A.) has observed an eruption of Herpes zoster appearing on the left shoulder and side of a woman aged 31, who was the subject of a late syphilitic ulceration of the nose, but he did not regard it as specific.

2. PUSTULAR SYPHILIDES

Synonyms. Pustulo-crusted syphilides, Syphiloderma pustulosum, Syphilide pustulo-crustacée, Syphilide varicelliforme, Syphiloderma varioliforme, Syphilide acnéiforme, Syphilitic acne, Syphiloderma impetiginosum, Syphilitic impetigo, &c.

Definition. An eruption of pustules, which form crusts and leave brown scars.

From the first, or at least from a very early period in their development, the elementary lesions are pustular, the inflammation starting in the papillary layer of the true skin, and raising the epidermis by a circumscribed collection of cloudy fluid. The pustules either burst or dry up, the contents appearing in the form of crusts, and when the latter have been removed or have fallen off, superficial or deep pigmented scars become apparent.

As noted above, Campana, Lang, and others, consider that the pustulation is due to infection of a papule by staphylococci which causes its substance to break up into purulent material which either bursts through or dries up into a scab. There is always some destruction of tissue, and the resulting cicatrix becomes visible when the scab falls. The crusts may be very abundant, especially upon the scalp and between the toes, forming the impetiginous syphilide which is not uncommon in those situations. Purulent syphilitic eruptions are more apt to be developed in ill-nourished subjects, or where nutrition has been profoundly affected during the course of the disease. They may make their appearance early, but more commonly occur later than the erythematous or papular eruptions. In the writers' experience the graver pustular syphilides show

themselves particularly where antisymphilitic treatment has been delayed or insufficiently employed.

(i) *The Varicelliform syphilide* is intermediate between the purely vesicular and the pustular eruptions.

In this form, numerous vesicles make their appearance upon reddened, raised macules; the individual vesicle is about the size of a millet seed or larger, rounded in outline or subconical, and sometimes becomes umbilicated.

The contents are at first clear, but may ultimately become cloudy. After some days the vesicles dry up or rupture, forming a scale or crust upon a subjacent dark papular base. They usually come out in crops upon the trunk and limbs.

(ii) *The Varioliform syphilide*. Most authors place the 'varioliform' syphilide in a different category from the 'varicelliform', as the lesions appear purulent from a very early stage; but as this latter character may be due, as mentioned above, to a staphylococcic or streptococcic invasion, and as in any case the epidermis is probably at first pressed up by an accumulation of fluid in the deeper layers, i. e. there is often a prior formation of a vesicle, we may describe it with the vesicular forms. It is, indeed, not always easy to draw the line between the varicelliform and varioliform syphilides, or to say whether some or all of the lesions more nearly resemble those of varicella or of variola. The chief difference is that the majority of the lesions of the varioliform efflorescence are pustular within a very early period from their origin.

Pathologically, we may suppose that the pressure on the small veins of the corium, caused by the surrounding specific plasma-cell hyperplasia, promotes an oedema in the superficial tissues; the serous fluid exudes into and collects in the

Malpighian stratum and thus raises up the more superficial layers of the epidermis ; and that in a very short time the papule becomes pustular.

Unna describes a section of a ' varicelliform ' syphilide, in which the whole epidermis was separated from the papillary part of the corium, the loosening of the epidermis being caused by the atrophy of the epithelium on the one hand, and the oedematous swelling of the papillary body on the other. In a varioliform syphilide he found the contents of the vesicle to consist mainly of leucocytes, serum, and fibrin. The separation in this case took place above the lower Malpighian layers. He found no micro-organisms within the vesicles. In both his varicelliform and varioliform sections, the swollen base beneath the vesicle showed the usual characters of the syphilitic papule. In the varioliform, the neoplasm protrudes more into the vesicle, thus producing the appearance of the dark centre.

The occurrence of this eruption is often ushered in by a well-marked rise of temperature.

Varicelliform and varioliform syphilides have from time to time been mistaken for true varicella and variola.

Sir Jonathan Hutchinson, Dr. Liveing,⁷⁴ and others, refer to instances of the kind, in which the imitation of small-pox has been so close that the patients have been erroneously admitted and treated in fever hospitals.

The elevated lesions, shotty to the finger, with their umbilicated centres and the initial fever, all lend colour to this error ; but the facts that other syphilitic manifestations will probably be present, that the face and backs of the hands will most likely be exempt, as well as the persistence of the eruption, and the position of the pustules on their dark bases, should soon indicate their true nature, even without reference

to the history of the case, the rapidity of onset, backache, excessive constitutional disturbance, &c.

(iii) *The Acneiform syphilide.* This, like the varicelliform and varioliform syphilides, generally appears within the first six months of the disease. The lesions here are more papular than those of the above, the pustules do not develop so quickly and are smaller in relation to the papules. They are, moreover, not so numerous, and are more prone to appear upon the face, chest, and back, although they may be seen also upon other parts of the trunk and upon the limbs. When the pustule breaks, a small brownish scab forms over the dark-red superficially ulcerating base, and after a time a pigmented spot remains, with sometimes slight scarring.

These acneiform lesions are usually accompanied by other papular and macular forms, and are further distinguished from *Acne vulgaris* by the fact that they appear simultaneously; while in acne, pustules may be seen in various stages of development. The absence of any relation to comedones is also diagnostic. The only case in which difficulty in diagnosis may occur is when a syphilide occurs in a patient already the subject of common acne.

There are two other varieties of 'acneiform' syphilide which may here be mentioned, although they make their appearance at quite a late stage of the disease.

The one resembles *Acne varioliformis*, and occurs chiefly on the forehead, temples, and front part of the scalp. It appears in the form of discrete pustules which leave definite scars.

The other resembles *Acne rosacea*. Small nodules, soon becoming pustular, develop upon the nose and adjacent parts of the cheeks, and there is usually a good deal of hyperaemia

of the face. Under antisyphilitic treatment healing takes place with more or less scarring. This form is often associated with elephantiasis of the lips. It is really an ulcerative syphilide.

Several instances of both kinds have come under the writers' notice.

Prof. Fournier includes the acneiform syphilide with the impetiginous and ecthymatous forms, under the general heading 'Pustulo-crustaceous syphilides'.

(iv) *The Impetiginous syphilide.* This presents from the very first an exuberant development of purulent material, which exudes and dries into an abundant crust varying in colour from a dirty yellow to a light brown.

The pustules may be small or large, superficial or more deep, numerous or scattered, but are more frequently grouped. The crusts which soon form are usually thick, and of considerable extent from the coalescence of adjoining pustules, and their surface is uneven, and granular in aspect. They are not very adherent, and the skin beneath, although slightly ulcerated, may ultimately show very little scarring; but a certain amount of pigmentation will usually persist for some time.

This syphilide particularly affects the hairy parts, the scalp, the nape of the neck, the beard, pubes, &c., but it may also appear in other positions, e.g. on the face, especially the forehead, angles of the nose, mouth, and on the chin, and between and about the toes.

As pointed out by Prof. Fournier, when this impetiginous syphilide appears early and extensively in a young delicate female, severe manifestations of the disease are likely to follow. This fact was well exemplified in a case under one of the writers' (P. A.) care. A young woman presented herself at

the hospital with an extensive yellowish crusted eruption, particularly on the scalp and about the mouth, and with enlarged cervical and occipital glands. No search for other lesions was at first considered necessary, and the usual treatment for impetiginous eczema was adopted. Little or no improvement ensued, and as the glands became enormously enlarged and suppurated, she was admitted as an in-patient. It was then found that she presented a typical papular rash in the usual positions, and she subsequently exhibited the symptoms of very severe syphilis.

Although this syphilitic eruption resembles, to a great extent, ordinary impetigo, or impetiginous eczema, and indeed, without reference to the presence of other specific symptoms, can readily be mistaken for them, there are differences which should be borne in mind. The crusts of this syphilide are drier, firmer, darker in colour, and more disseminated than in non-syphilitic conditions, and they less frequently occupy such large areas. The localisation in certain parts is also characteristic, although it must be remembered that the non-specific crusted eruptions also affect these positions as well as others.

3. THE ECTHYMATOUS SYPHILIDE

Synonyms. Large flat pustular syphiloderm, Syphilitic ecthyma, Pustulo-crustaceous syphilide, Pustulo-ulcerative syphilide, Rupia.

This syphilide is really an accentuated form of the pustular syphilide, but the initial pustules are larger, the crusts darker in colour, thicker, denser and firmer, the ulceration more marked, and the corresponding scarring is more obvious than is the case with the syphilides just described. Two forms are recog-

nized, a 'superficial' and a 'deep'; the former occurs as a comparatively early eruption, the later as a rule at a much later period.

THE SUPERFICIAL ECTHYMATOUS SYPHILIDE

The superficial ecthymatous syphilide of Prof. Fournier seems to be somewhat like the 'varioliiform' and 'acneiform' syphilide of many other authors. It consists of small rounded pustules of from 2 to 4 mm. in diameter, situated on a dark red base, which, however, is not indurated. The pustules either rapidly dry up or burst, thus forming a brownish adherent crust over a superficial ulcer. These lesions are to be found sparsely scattered among other syphilitic eruptions, and sometimes themselves constituting the bulk thereof. They occur on the neck, back, chest, and body generally, and also on the limbs, especially the lower.

This form may make its appearance from four to six months after the primary sore, and is not to be regarded as such a very grave manifestation of the disease as the deep ecthymatous syphilide.

These disseminated crusted lesions are, as above stated, not very dissimilar to the varioliiform and acneiform syphilides, but the lesions are to be distinguished by the facts that they have a less marked papular base and that the crusts are darker and more adherent. From the papulo-crusted syphilide previously described they are further differentiated by the circumstance that there is a definite ulceration beneath the crusts. Unna (loc. cit., p. 550) and many other recent authors regard the superficial ecthyma syphiliticum as a mixed infection due to pyogenic micro-organisms invading a papulo-crusted lesion.

This superficial ecthymatous syphilide is to be distinguished from the non-specific ecthyma, and from the crusted lesions which may sometimes be seen in cases of eczema, scabies, and phthiriasis. The crusts are darker and more adherent, there is always more or less ulceration, there is a dark reddish-brown areola, and the resulting scar remains pigmented for a considerable length of time. Other signs of syphilis accompanying the rash, and a history of other specific lesions, must also be taken into consideration (Plate XI). The crusted tuberculides will be mistaken more readily for the deep ecthymatous forms.

Prof. Fournier ('Leçons,' p. 311) also describes under the head of 'Impetiginous syphilide' a form which he terms 'Impetigo rodens,' in which the inflammatory areola is larger and more livid, the crusts firmer and more resistant, more like those of the 'ecthymatous' syphilide, and the ulceration deeper and more extensive than in the above. It tends to spread eccentrically, with an advancing pustular border, ultimately forming a large patch, and is very obstinate to treatment. The favourite position seems to be the face. In many respects it resembles the 'ecthymatous' syphilide, and, like it, is a comparatively grave manifestation of the disease; the original pustules, however, are probably smaller and the crusts not so dark. The tendency to encroach on the adjoining skin, and the fact that a true phagedaenic ulceration may supervene, render such cases very serious. One may say indeed with safety that the distinction between 'Impetigo rodens' and the true ecthymatous lesion is very fine-drawn.

THE DEEP ECTHYMATOUS SYPHILIDE

Synonyms. Pustulo-ulcerative syphilide, Rupia.

The deep ecthymatous syphilide has for its essential initial lesion a large pustule, which gives rise to the formation of a thick crust above, and an extensive and deep ulceration below: the pustule is rounded in form, and comparatively flat, and its contents are sanious, thin, and purulent. A reddened, slightly swollen spot may precede its appearance (Plate XLV, vol. i). The pustule soon dries or bursts, and the contained fluid forms an adherent crust. But the process does not stop here: beneath the crust there is further exudation and destruction of tissue, both deeply and peripherally; a second crust below the first is thus formed, closely adherent to it but extending a little beyond its margin, and a deeper and wider ulceration is thus produced. This process goes on—crust beneath crust, with deepening and extending ulceration—until a typical laminated shell-like crust is produced (Plate XI), which, when forcibly removed, discloses a characteristic deep punched-out ulcer. These crusts may be several centimetres in diameter, thickened in the centre and conical in form, of a dark reddish-brown or greenish-black (Plate XLV, vol. i) colour, and of tough consistence. They then constitute the well-known ‘limpet-shell’ or ‘rupial’ crusts.

The subjacent ulcer may extend deeply into the skin, even as far as the subcutaneous tissue, the floor being greyish or brownish in colour, and secreting the purulent fluid which forms the crust. The walls of the ulcer are perpendicular, and seem to enclose the edge of the crust, which may thus appear to be ‘set in’.

During the healing process—and this is generally slow in

beginning, even under treatment—the crust usually falls off, and the ulcer closes up by granulation. The resulting scar is always depressed, more or less circular in shape, and deeply pigmented (Plate XV). The dark circular discoloration may remain for years, and is very characteristic of a former deep pustular syphilitic lesion. On the other hand, in course of time, only a thin depressed white scar may be visible, with perhaps some surrounding pigmentation.

The syphilide just described is commonly known under the name of ‘Rupia’, and there is considerable difference of opinion among writers on syphilis as to its exact position with regard to the period of its appearance.

The general experience is that it usually develops in the late ‘secondary’ period, i. e. from one to two years after the ‘primary’ sore; Sir Jonathan Hutchinson (*loc. cit.*, new edition, 1909, p. 125) considers that ‘its usual date is from six to twelve months after the chancre’, but it may occur later even than two years afterwards; some writers, indeed, regard it as one of the cutaneous manifestations of the ‘tertiary’ period. On the other hand, rupial eruptions with resulting ulceration and scarring may be sometimes seen quite early in a case. (Plate XII; Plate XLV, vol. i). One of the writers (P. A.) of this article has seen crusted ulceration within three months of the first appearance of the disease, and still earlier instances have been recorded.

It has been frequently noticed that a rupial eruption follows a severe chancre, especially one which has become phagedaenic; and it is also generally recognized that this, as well as other pustular syphilitic lesions, is more apt to be developed in subjects who are ‘run down’ in constitution.

When rupia shows itself early in a case, the lesions are more numerous and more symmetrically placed than when

it occurs as a very late eruption. In this, indeed, rupia follows the general rule in regard to early and late syphilides.

In some instances these pustular ulcers, typically arranged in circles, coalesce, and the crusts form irregular masses (Plates XIII and XIV). Such lesions may be confounded with crusted tubercular affections of the skin (Plate XXIX, vol. ii).

Many authors place rupia among the 'bullous' syphilides, and can point to instances in which the lesions have been preceded by distinct though evanescent bullae, which, however, admittedly soon become purulent. Others consider that bullous and pustular stages are not essential; but that a rupial crust and ulcer may form by ulceration of a nodule. The writers have followed Prof. Fournier's view, but they admit that although a preliminary pustular stage may be most frequent, it is quite possible for rupial crusts to be developed without previous pustular or bullous formations.

4. BULLOUS SYPHILIDES

As just stated, the deep ecthymatous syphilide is typically developed after the formation of a definite pustule. The contents of this pustule may be at first comparatively clear; but this condition is very evanescent and is rarely seen. It is conceivable, however, that a rapid serous exudation may take place, containing at first, and for some time, but few pus elements. We should then have, temporarily at any rate, a definite bulla.

In such case, the usual course is for the contents soon to become very extensively purulent, and burst or dry up into a thick dark crust, and to erode by ulceration the subjacent tissue (Plate XVII). In other words, a typical rupial lesion is produced;

and so much so is this the fact that, as we have just seen, 'rupia' is often regarded as a 'bullous' syphilide.

Apart, however, from this form, syphilides which are truly pemphigoid are well known in infants with congenital syphilides, and have from time to time come under notice even in adults.

The infantile bullous syphilide is adequately described by Still (vol. i, p. 298 of this work), and, as he properly points out, it must not be confounded with the non-specific pemphigus—known as *Pemphigus neonatorum*—which makes its appearance from extraneous microbic inoculation some little time after birth. Although the congenital bullous syphilide is characteristically limited to the palmar and plantar surfaces of the infant, the eruption may be on rare occasions more extensive and, indeed, generalized over the whole integument.

5. THE SQUAMOUS SYPHILIDE

In olden times a 'scaly blotch' was considered to be especially characteristic of syphilis, even by the great authority Carmichael (loc. cit.), who laid down the dictum 'in syphilis the eruption is scaly', and he believed that the true Hunterian chancre was always followed by a psoriatiform eruption. As we have seen, indeed, it is by no means unusual for erythematous and papular syphilides to develop scales upon the original macule or papule, as the case may be (Plates II, III, VI, and VII). This scaliness is sometimes so pronounced as to give origin to the names 'Papulo-squamous syphilide', 'Leprous syphilide', 'Syphilitic psoriasis', &c. In a syphilitic eruption of some duration 'scaliness' is frequently its most obvious feature. This is especially true of lesions situated on the palmar and plantar surfaces, as indeed was observed by Massa and Fallopius as

early as the sixteenth century. In point of fact, several of the syphilides already described may have a scaly stage before their final resolution. A pure squamous syphilide, scaly from the very first—the scaliness not being a superimposed character on a pre-existing macule or papule—is, on the other hand, so very rare, that many authors decline to consider the squamous syphilide in a separate category.

Three forms, however, may be especially described :—

1. Pityriasiform syphilide (Fournier), exhibiting furfuraceous yellowish macules, not raised above the surface, and not pruritic.
2. Psoriatiform syphilide.
3. Tylotic syphilide.

PITYRIASIFORM SYPHILIDES

One of the present writers (P. A.) has seen on some few occasions syphilitic eruptions which might well be placed under the first category. Quite recently a middle-aged woman presented herself at the West London Hospital with condylomata about the perineum, well-marked inguinal, post-cervical, and sub-occipital adenitis, congested fauces, scattered impetiginous lesions in the scalp, slight impetiginous dermatitis of one concha, and several large patches of a dirty-yellow dry scaly—in fact ‘pityriasiform’—eruption on the cheeks, upper lip, and chin. No other cutaneous lesions—macules or papules—could be discovered upon the trunk and limbs, or pigmentary changes about the neck. The rough discoloured patches near the mouth had appeared recently, and the patient disclaimed any previous eruption upon the face or elsewhere, although she admitted having noticed a sore in the vulva about two months previously. All the lesions disappeared under mercurial treatment.

PSORIATIFORM SYPHILIDES

The true psoriatiform syphilide is no doubt also very rare—that is to say, an eruption which really resembles true psoriasis and occurs in comparatively large scaly patches, not necessarily upon previously existing papules, large or small, or intermingled with other syphilides, like the common papulo-squamous syphilide or so-called ‘syphilitic psoriasis’ of many authors, which is described above under the papular eruptions.

According to Bassereau it differs from ordinary psoriasis in four respects : (1) the scales lie upon a coppery-red base ; (2) the patches have the border more raised than the centre ; (3) they leave slight cicatrices ; and (4) they are accompanied by other syphilitic eruptions. He regards the second and third points as especially diagnostic.

The spots may be guttate and diffuse, irregular in size and form, or in circles, and they generally make their appearance long after the primary manifestation.

In the writers’ experience, this form is occasionally to be found in females comparatively late in life, and many years after possible infection. In a series of 829 hospital cases of syphilis he has notes of only six coming under this category. While resistant to the ordinary external and internal treatment for true psoriasis, it may yield readily to 5 or 10-grain doses of potassium iodide. The lesions are chiefly upon the lower extremities ; they are of a more livid colour and more prone to have a serpiginous outline than ordinary psoriasis ; the scales are not so thick and abundant, and the patches are not so apt to affect chiefly the elbows, knees, and extensor surfaces, although they may be present on these situations as well as on the flexor regions. One of the cases of syphilis at

the West London Hospital, a woman aged 33, exhibited atypical psoriatiform patches on the elbows and knees and more extensively on the backs of the hands. They soon disappeared with small doses of potassium iodide.

Another patient presenting a squamous syphilide of this type attended at the hospital in 1902, a young married woman with an eruption of large scaly areas in the bends of the elbows and outer part of the thighs of three weeks' duration. It was of a light-brownish colour, and not pruritic. She had recently been confined, and stated that her husband had had 'something the matter with him' two years previously. The writer (P. A.) can refer to a few private cases of undoubted syphilis, in which the principal cutaneous lesions, when the patient came under observation, were of this squamous or psoriatiform character.

Dr. Fordyce⁷⁵ showed at the New York Dermatological Society in 1901 an unusual type of syphilitic eruption, closely resembling psoriasis, on the extensor surfaces of the arms—with ordinary syphilitic lesions elsewhere.

On the other hand a scaly psoriatiform palmar and plantar syphilide is frequently to be observed as a comparatively late eruption. This differs from the early squamous affection of the palms and soles in usually being unilateral, and often in being the sole syphilitic manifestation present in the patient. When seen on the upper extremity it generally affects the hand which is most used, and is especially to be found in those who handle spades, tools, &c.

The lesion, as a rule, is not pruritic; while the somewhat raised border continues to spread in serpiginous fashion, the central part shows a tendency to heal. Very superficial scarring may result. It sometimes persists for years. In a case

of the writer's ⁷⁶ (P. A.), shown at the Dermatological Society of Great Britain and Ireland, in 1896, a woman, aged 60, had a scaly eruption of the left palm for twenty years. She stated that six years before the hand became affected she had contracted venereal disease from her husband. The palmar syphilide in this case soon yielded under specific treatment.

In another instance, that of a man, both hands and forearms had been the seat of a scaly rash for twenty-five years (Plate XXIII).

TYLOTIC SYPHILIDES

It is by no means uncommon to find a well-marked hyperkeratosis of the palmar and plantar surfaces in old syphilitic cases. In some instances the hypertrophic epidermis follows upon a previous papular syphilide; in others there have been scaly, pustular, or ulcerative eruptions. As is the case with the late squamous syphilide just described, the lesion is often unilateral. It may be limited, moreover, to the outer side of the plantar surface, or to the heel. Both on the hands and on the feet, it may be furrowed and cracked, and with deep painful rhagades.

In one case shown by the writer at the Dermatological Society of Great Britain and Ireland a woman had both palms and both soles affected with an inflamed 'keratotic' condition, which had commenced six months previously. It was painful, and there had been some pustulation; there was a vague specific history of two years' duration. The lesions showed rapid improvement under potassium iodide.

CHAPTER V

THE LATER SYPHILIDES

WITH the exception of certain of the squamous, the deep ecthymatous, and rupia-like forms, all the foregoing syphilides may be considered to be characteristic of the early stages of syphilis. Those about to be described, on the other hand, usually make their appearance at a considerable interval of time after the early cutaneous manifestations have disappeared, and are to be regarded as essentially 'late' syphilides. It must, however, be admitted that even these occasionally develop at an early date—within a few months—after the disease has been acquired, and are then known as 'precocious gummata'. These are particularly prone to occur in the so-called malignant syphilis.

These late syphilides may be said to differ from the early forms in the following respects :

1. The lesions are not symmetrically distributed.
2. They are few in number.
3. They involve the deeper layers of the skin and even the subcutaneous tissue.
4. They frequently ulcerate, and in healing leave atrophic cicatrices.
5. They are sluggish in their course, or more 'chronic' than the early forms.
6. Their development is more influenced by extraneous circumstances than is the case with the early forms.

The principal varieties are the 'nodular' or 'tuberous' and the 'gummatous', and as developments from these the 'framboesiform', the 'serpiginous' and the 'ulcerative'.

Histology of the late syphilide. Sections of a syphilitic nodule occurring late in the disease exhibit much the same histological structures as those of the early papule: viz. dense masses of plasma cells in a vascular connective tissue framework. According to Unna (loc. cit. p. 555), the tissue of the nodule is always firmer, more resistant and less prone to spontaneous absorption, although in like manner with the papule, the new growth is always at first in association with the blood-vessels. It is believed that the late nodules have their origin in the remains of a former early lesion, which may have been persistent around the vessels. In support of this view, we may call attention to the frequency with which a nodule is found upon the site of the original chancre.

The same authority maintains that the 'gumma', on the other hand, does not arise from remnants of a former syphilide, but irregularly from isolated points, not necessarily in connexion with the blood-vessels.

The tissue of a young gumma is made up of a central mass of thickly packed small plasma-cells, with large nuclei, and with larger cells, as well as spindle cells. Towards the periphery giant cells often are to be found. The connective tissue is comparatively scanty, especially in the centre of the young gumma, but there is considerable vascularity—a circumstance that distinguishes the growth from a tubercular mass. In the older gummata the connective tissue has quite disappeared from the centre. In some instances, as described by Unna, a peripheral fibrous capsule is developed, which encloses the central cellular mass: in other cases the gumma is not

encapsulated nor sharply defined microscopically from the neighbouring tissue.

Sections of the older gummata show the central cells, which have rapidly multiplied by simple division, in varying conditions of fatty and caseating degeneration, with the resulting formation in parts of soft, broken-down, gummy masses.

When caseation occurs in the syphilitic gumma, it is rarely firm, dry, and crumbling, as is commonly the case in the degeneration of tubercular deposits.

It will be seen from the above remarks that all the late syphilides, whether they arise on the site of an early lesion or not, and whether they are connected with blood-vessels or no, consist essentially of a dense infiltration of plasma cells, together with a varying quantity of connective tissue. According to the way in which these constituents behave, the different modifications arise which we are about to describe. If the lesions remain small and discrete, a nodular or tubercous syphilide is formed. If, however, the individual nodules extend and coalesce, a serpiginous lesion is the result.

Again, the nodules may fungate and give rise to hypertrophic masses, and thus present the clinical picture known as the framboesiform syphilide. On the other hand, if there be a large and single mass of subcutaneous infiltration, we have before us a gumma which eventually may be absorbed, leaving merely some cicatricial retraction of the skin, or may burst through the surface and form an ulcerative syphilide, the commonest of all the late manifestations of the disease. It should always be remembered that the late lesions of syphilis, whether they ulcerate or not, tend to leave scars, but those left by the nodular forms are far less conspicuous than those left after ulceration, and, as is fortunately always the case,

lesions upon the face leave less conspicuous scarring than do lesions of equal severity upon other parts. On the whole the tuberos or nodular forms occur earlier after infection than the gummatous, as a rule within the first two or three years. Naturally they are commoner in insufficiently treated cases. Gummata, on the other hand, although they may appear quite early in severe, particularly in the precocious or so-called malignant cases, are associated more characteristically with a period many years after infection. Convenient though it may be to describe the nodular and gummatous forms of later syphilides separately, it is often difficult to draw the line between a nodular lesion occupying the true skin and a gummatous growth which specially develops in the subcutaneous tissue, and secondarily involves the corium; the two forms pass insensibly into one another. The German authorities have not attempted to differentiate them, and place both in the same category. The typical nodule, however, may be regarded as little more than an enlarged papule, only differing from it in its size in every dimension, and in involving the whole thickness of the skin. Like the early papular syphilide, it shows little or no tendency to break down or ulcerate, and, like it, may resolve and vanish without softening, but a cicatrix always remains. Such nodules always exhibit the characteristic dull red colour of the typical syphilide, and are either smooth or, less frequently, scaly on the surface; they are markedly infiltrated, and are therefore firm and solid to the touch. As stated above, the usual time for their appearance is within two or three years after infection; they may indeed be seen as early as a few months after the acquisition of the disease. In accordance with the general rule, the later they appear, the more scanty their numbers, and the more irregular

and less symmetrical their distribution. They may be developed upon any part of the body and limbs ; but the sites of predilection are the head and face, especially about the forehead, nose, and mouth ; on the back of the neck and shoulders, the lower part of the back and buttocks, and the extensor surfaces of the joints. Very frequently in the later cases several nodules are developed in a closely-set group ; coalescence between them then commonly occurs, and patches are formed of divers shapes and sizes. These forms may be annular, or nearly so, kidney-shaped, or quite irregular in pattern. Very often the margin is made up of a number of segments, more or less complete, of a circle, and a sinuous effect is produced, which suggests to the observer the coils of a serpent, and thus the characteristic serpiginous syphilide arises. It is then impossible to trace the original nodules, and only a hard infiltrated edge can be determined. Fresh nodules, however, may appear near the margin, and the edge previously formed seems to advance into them, and thus the lesion extends. Sometimes ulceration takes place, particularly among the larger nodules, and a typical syphilitic ulcer, but usually of small size, is produced. These ulcers may heal spontaneously. Meanwhile it often happens that the centre of the patch undergoes involution, and disappears, leaving merely an atrophic, pale, and depressed scar. In this way large areas of skin may be implicated, whether upon the face, trunk, or limbs. According to Unna, this peripheral creeping is due to the concurrent existence of an eczematous or seborrhoeic condition. The early crusted and papulo-squamous syphilides, especially those of the hairy parts, often show a tendency to spread in this way, and Unna's suggestion possibly may be the true explanation in their case. The term serpiginous really only describes

a particular method of growth, which is by no means peculiar to the nodular syphilide, for many pustular and ulcerative lesions spread in the same manner. Some authorities have grouped all those forms which have in common this method of growth under a single head—the serpiginous syphilide—but it appears to us that this is an unsound classification, as it involves the association of forms which in other respects are markedly different. Sometimes the appearance of a nodular syphilide seems to be determined in a curious manner by external circumstances; for example, it may appear upon the site of a bruise, or as in a case not long ago observed by one of the present writers, it appeared on either side of the nose at the point of pressure of the pince-nez which the patient wore.

While it cannot be said that the nodular syphilide is rare, still it is by no means so common as the gummatous form. Gummata-like nodules are particularly prone to occur in untreated or insufficiently treated cases. Frequently they do not appear for many years after infection, long after the early exanthemata and all other evidences of syphilis have passed away. On the other hand, as was mentioned above, in the so-called precocious or malignant cases, they may appear in the first year or the second, or even within a few months of the development of the primary lesion. Cases indeed have been seen in which gummatous growths have been among the first cutaneous lesions observed after the chancre. One may say perhaps that the earlier the gummatous lesions appear, the more severe is the disease. Typically, they appear as small nodules beneath the skin, not, like the true nodular syphilide, in the skin. Gradually they increase in size, at first stretching out the skin, and then infiltrating it, while at the same time the normal flesh colour changes to a dull red. Particularly

characteristic of the gummatous tumour is its rapidity of growth ; in the course of a few weeks it may attain the size of a pigeon's egg, or even greater dimensions. Owing, however, to the paucity of its blood-supply, a feature common to all granulomata, the central portion necroses, softens, and gradually breaks down, thus forming a deep, cavernous ulcer, and this is the picture usually presented to the clinician when the case first appears for treatment. It is comparatively rare to see a cutaneous gumma before ulceration has taken place. Nevertheless, it must be admitted that at times, even after softening, gummata may resolve without ulceration. Another type of lesion is seen when a diffuse gummatous infiltration takes place. In such a case an area of considerable size is implicated from the first. The infiltration converts both skin and subcutaneous tissue into a brawny, oedematous slab, of the typical syphilitic colour. Softening soon takes place, usually in several places simultaneously, and a number of multiple ulcers are thus produced. Multiple ulcers may also be produced when a large number of gummata of small size develop close together, and fuse into an irregular mass, which then ulcerates in several places. This is essentially one of the cases where it is difficult to decide whether we have primarily to deal with a nodular or gummatous lesion.

We have already seen that ulceration is not an infrequent event in the course of any syphilitic eruption, but it only occurs in the early stages when the disease is particularly severe. In the later stages, however, ulceration is particularly common. Of a series of some 550 late syphilitic lesions observed at the West London Hospital, no less than 345 were noted as ' ulcers ' or ' ulcerated '. To the present writers it is inconceivable that ulceration can take place without the previous development of

a specific infiltration or granuloma in the integument. Nevertheless, such eminent authorities as Kaposi, Lesser, and others, make a special division for the ulcerative syphilides. Although we may discard this as a separate class of lesion, still the syphilitic ulcer is so clearly characterized by special features, that it merits adequate description. The walls are sharply cut, perpendicular, and, as is often said, look as if they had been punched out. The edges are thin and undermined. The shape is by no means constant, but is most often roughly oval; occasionally it is serpiginous or even quite irregular. The floor is uneven, usually covered by a grey slough, which is bathed in a foul, sanious, and purulent fluid. This, if permitted to dry, forms a dark thick crust. Surrounding the ulcer is a dusky red areola of inflammation. To some extent the ulcers vary, according to the lesion from which they spring. Those which follow pustular eruptions present denser and thicker crusts. Those which result from the breaking-down of gummata in the skin are larger, deeper, more cavernous; their edges are more sinuous, and the crusts are less conspicuous. Commonly they secrete a copious discharge, consisting of the débris of the broken-down granulomatous tissue, mingled with purulent serum. The smaller ulcers are frequently multiple, and it often happens that several are seen in a group close together. Like the larger ones, they may be irregularly and asymmetrically placed upon any part of the head, trunk, or limbs. Although no part of the body of an individual who has once had syphilis is free from the risk of becoming the site of a gumma, there is no doubt that of all places the lower limbs are the most often attacked. Of the series of 550 cases at the West London Hospital, in no less than 288 out of the 345 ulcerated cases the lower limbs were affected. The most frequent position for the larger ulcers

is on the calf, most often upon the outer aspect, in contradistinction to the varicose ulcers which prefer the thin skin over the tibia. They also occur, with fair frequency, on the outer side of the knees, on the thighs and buttocks, on the shoulders and near the elbows. The face and scalp, too, are often affected. The exact site of a large gummatous ulcer is a matter of considerable importance to the patient, for it may penetrate very deeply, and attack the underlying structures. Hence, if near a joint, septic arthritis may be caused, and if over a bone, necrosis may take place. Such a mishap is, of course, most serious when the skull is affected, for necrosis, not only of the outer, but of the inner table of the skull, may take place, and thus an opportunity is afforded for septic infection of the meninges. Specimens of syphilitic necrosis of the skull which have terminated in this way are to be found in most pathological museums. Of late, owing no doubt to the improvements that have been made in the system of treating the disease, these cases are not so frequent as they were; still the appearance of a gumma on the scalp is always a matter for grave concern.

The type of individual most often affected by gummatous ulceration, particularly of the leg, is a woman of middle to advanced age, and, as a rule, the diagnosis has to be made without the assistance of any history from the patient, or of evidence of any previous syphilitic symptoms, except possibly that she has had miscarriages, or has borne unhealthy children. In many cases a story of traumatism is readily forthcoming. In one instance, a syphilitic ulcer of the sole of the foot occupied the site of a former callosity. But notwithstanding the absence of historical or visible evidence of former lesions, there is seldom any doubt as to the accuracy of the diagnosis; in

former days it was confirmed by the favourable response to treatment with iodides; now we can test it immediately by calling in the pathologist to perform Wassermann's reaction. There is indeed accumulating an increasing body of proof that in women gummatous ulceration may be the very first outward sign of syphilitic infection, and it seems that it is particularly likely to make its appearance at the time of the menopause. These ulcers are occasionally very painful, and show little tendency to heal if left untreated, but improvement soon sets in under the influence of potassium iodide. The scars they leave are well marked and depressed; at first they are of a dark colour, but after a time the pigment disappears from the centre, leaving it white, while the periphery remains permanently pigmented. Such scars have often been likened to parchment, owing to their peculiar consistency.

We have to consider now certain modifications of the main types of later syphilide. These are the framboesiform syphilide and syphilitic elephantiasis, and the occurrence of phagedaenic ulceration.

The framboesiform syphilide is comparable with a condyloma of more than ordinary size. In certain situations where the parts are constantly moist, or where there is retention of secretion, a condyloma may develop into a fungating, cauliflower-like mass. Such papillomatous vegetations are most frequently seen in the neighbourhood of the anus, and they have often been the subjects of illustrations in old textbooks. The same transformation may happen to the later nodular and ulcerative lesions on the scalp, face, and other parts of the body, and thus is formed the so-called framboesiform syphilide. These protrudent masses have been supposed to suggest strawberries or bunches of grapes, and resemble the lesions of

framboesia or yaws. They have commonly an irregular and ulcerated surface, which secretes an offensive muco-purulent fluid. In this connexion it is interesting to recall that within recent years it has been shown that framboesia is caused by a spirillum, which it is very difficult to distinguish from the *Spirochaete pallida*. The colour photograph (Plate XVI) shows lesions which approach this type, in addition to nodules and rupial ulcerations. We would also direct the attention of the reader to Plate XLVI in the first volume of this work.

A condition resembling elephantiasis is occasionally seen accompanying tertiary syphilis of the lower extremities. This is due to an occlusion of the lymphatics, associated with great hypertrophy of the integument. The legs may reach proportions at least double their original size. The condition is not apparently accompanied by pain. It has recently been found that in these cases there is, in addition to gummatous infiltration, a streptococcic infection of the lymphatics, and it appears probable that without such an additional infection elephantiasis cannot arise. It is interesting to note in connexion with this subject, that the same point has been demonstrated in regard to the elephantiasis associated with the *filaria sanguinis hominis*, for in this type of elephantiasis also streptococci are always to be found.

These cases are always very chronic and resistant to treatment, no doubt owing to the secondary infection. Irregular and deep ulceration, with dark adherent crusts, is present, which only heals with difficulty. Similar hypertrophies have been noted in other parts, such as the vulva and the scrotum. In Plate XIX will be found an example which shows this condition developed to a moderate degree. One

of the writers (P. A.) has had under his care at Blackfriars Hospital two cases in which the leg was twice the size of that figured.

Lastly, we must remember that gummata may be complicated by the occurrence of phagedaenic ulceration. All syphilitic lesions are liable to be attacked in this way, but primary sores and late gummatous ulcers are especially prone to be affected by this serious complication. It is not now so common as it was in pre-antiseptic days. When it occurs, the edge of the ulcer becomes eroded in an irregular fashion, and sloughs away rapidly ; at the same time the floor is similarly attacked. Thus the extent and the depth of the ulcer are increased, and this with the most alarming speed. Great pain is often experienced by the unfortunate patient, and he suffers also from severe constitutional symptoms. The condition is no doubt due to a secondary infection with a malignant microbe. In times past, as pointed out by Sir Jonathan Hutchinson, these cases used to be a frequent source of outbreaks of hospital gangrene in surgical wards. The type of patient most likely to suffer from phagedaena is one whose constitution has been debilitated by over-drugging with mercury, or whose powers of resistance have otherwise been weakened, for example, by drink and debauchery, but cases have been seen in patients who, apart from their syphilis, are in fair general health. When the process has once started, it can often be arrested only with difficulty. Dusting with iodoform may be tried, but it is usually necessary to cauterize the ulcer freely and thoroughly with some powerful reagent, such as acid nitrate of mercury or fuming nitric acid ; after which the patient should be kept continuously in a hot bath for twenty-four or forty-eight hours, a measure first advocated by Sir Jonathan Hutchinson.

Later on healing may be aided by transferring the sufferer to a bracing seaside resort.

One of the writers (P. A.) recently had a case of phagedaena under his care in which the patient had contracted syphilis from a negress in West Africa, and had at once been treated vigorously with mercury. The ulcer started from a broken-down gland in one groin. It spread rapidly across the pubes, invaded both groins and the lower third of the abdomen, and attacked the penis. Deep sinuses were produced, and healing did not take place completely for eighteen months, notwithstanding a prolonged stay at the seaside.

CHAPTER VI

SYPHILIS OF THE HAIR AND NAILS

FROM the earliest times the loss of hair in syphilitic subjects has been considered a noteworthy symptom of the disease. Fracastorius,⁷⁷ one of the earliest syphilographers—in fact, the first to call venereal disease ‘syphilis’—wrote as follows: ‘The sick begin to shed their hair, not only of their heads but of their Eyebrows and Beards; by which they are made ridiculous in the world; some appearing with bald pates although young men, others without any eyebrows, and others again with smooth chins like Women or Boys.’ At the present time we hardly attach so much importance to specific alopecia, for we can scarcely class it among the graver phenomena of the malady; but it is sometimes undoubtedly a symptom of diagnostic significance, as well as a source of considerable annoyance to the patient; indeed, when extensive and persistent, it must be regarded as really serious, at all events from the cosmetic standpoint. But with all due deference to Fracastorius, it seems quite probable that many of the cases of loss of hair which he ascribed to syphilis were really due to that mysterious disease alopecia areata, or other causes.

The impression seems very prevalent, at all events in lay circles, and to some extent among medical men, that syphilis is always attended by loss of hair. This of course is not so. Many cases pursue their entire clinical career without suffering from loss of hair at all. On the other hand, some degree of affection of the scalp is not uncommon. Alopecia occurring

in syphilis may be one of two kinds : In one case it may be considered analogous to the capillary defluvium which so frequently follows the acute exanthemata, or other diseases in which the general nutrition of the skin and its appendages is profoundly affected, a condition of which the unhealthy and muddy complexion of syphilitics is additional evidence. This, however, is hardly what is meant by the term syphilitic alopecia ; by that we understand an alopecia due to the toxic effect of the specific virus exerted locally, which is the second kind of alopecia occurring in syphilis. This effect is of course most obvious when definite cutaneous lesions are developed upon the hairy parts, whether they be erythematous, papular, pustular, or ulcerative. In such cases, if the inflammation be profound, or the ulceration be severe, the hair follicles are destroyed, so that no hair ever grows again upon the scars that mark the site of the lesions, which remain permanently bald patches. In some instances the appearance produced resembles the condition known as alopecia cicatrisata or the pseud-pelade of Brocq. Another characteristic form of syphilitic alopecia is the patchy variety in which the hair falls irregularly, and the scalp presents a ' moth-eaten ' appearance. The bald patches are irregular in shape, approaching a roughly circular or oval form. Frequently they coalesce. They are rarely quite bare, and superficially the clinical picture is not unlike that of a bad case of ringworm. Generally the condition is more marked towards the back of the head. Scurf or seborrhoea is a frequent concomitant. It has been suggested that the patches of alopecia really occur on the sites of evanescent roseolous macules, and it is not improbable that this is really the case, especially as the condition is most marked on the back of the head, as if it had spread up from the nape of

the neck, a favourite site for a roseolous eruption. As a rule in these cases the alopecia disappears as the anti-syphilitic regimen takes effect, but occasionally the hair remains permanently more or less scanty.

The commonest variety of alopecia which occurs in syphilis is a general thinning, which takes place at a comparatively early stage in the disease, i.e. from the third to the sixth month. The hair becomes dry and lustreless, and even if it does not fall out spontaneously, is loosely held in the follicles, so that if pulled it comes out very easily. Between this state and a condition of complete alopecia, every degree of baldness may occur. The eyebrows, face, and pubes may also share in the affection. Such a calamity is, fortunately, not usual, but more cases than one of complete generalized alopecia following on syphilitic infection have come under the writers' notice. Probably many of the cases of this variety of alopecia occurring in syphilis, especially the less severe, are really instances of alopecia due to general mal-nutrition, and should not be described as syphilitic alopecia, if by that term we are to understand that alopecia which is due to the local action of the specific virus. In this class of alopecia, also, seborrhoea is a frequent accompaniment, and there is no doubt that the existence of this condition of the scalp predisposes a syphilitic patient to loss of hair. If any one so affected is so unfortunate as to contract syphilis, he or she should bestow particular attention on the treatment of the scalp.

In some cases syphilitic alopecia closely resembles certain forms of true idiopathic alopecia areata, but as a general rule the syphilitic alopecia can be recognized by the fact that the patches are more numerous, less circumscribed, less polished in appearance, and by the absence of the characteristic 'note of

exclamation' stumps; moreover, in syphilis there is no particular tendency of the hairs to come back without pigmentation. On the other hand, it must be remembered that true alopecia areata may occur in syphilitic subjects, and in them the prognosis is worse than in persons who have not their disadvantage.

AFFECTIONS OF THE NAILS ARISING IN THE COURSE OF
SYPHILIS.

With the hair we may conveniently bracket the nails. These structures may be profoundly affected in syphilis in several different ways, but they are all extremely rare. The lesion may begin in the matrix of the nail, in the nail itself, or it may commence in the surrounding skin and involve the nail secondarily. We may thus speak of a syphilitic onychia and a syphilitic perionychia, but owing to the rarity of these conditions it is difficult to classify them with exactitude. Further, it must not be forgotten that the nail-bed is a favourite site for an extra-genital chancre, particularly among members of the medical and nursing professions. Such chancres are always extremely painful, they are seldom recognized early, and are often the prelude of a severe attack of the disorder.

Onychia. This may assume several forms :

Sometimes the nail, either wholly or in part, becomes dull, opaque, brittle, and thickened at the free border, which tends to split and chip off, while the surface becomes rough and furrowed. The process usually begins at one spot near the base, and gradually spreads until a great part or even the whole of the nail is affected. The skin beneath the distal border generally becomes scaly and thickened, and this condition may extend to the integument all around the nail. On the nail itself may be seen pits and depressions, and parts may be broken

away, or in some spots merely thinned. Either one or more nails of the fingers or toes may be affected in this way, and such lesions generally make their appearance within one or two years of the acquisition of the disease. This condition is usually known as *onychias sicca*. It is so rare that Heller,⁷⁸ who studied about 9,000 cases of syphilis with especial regard to diseases of the nails, only found three cases.

According to Heller, the commonest form of syphilis of the nails is the isolated papule of the nail-bed. He has repeatedly observed it. As the name implies, what really happens is that in the course of a secondary eruption one of the papules chances to be situated under the nail. The appearance presented is that of a dark red spot under the transparent nail, of about the size of a linseed or bean, which, as the syphilitic infiltration disappears, becomes yellow in colour; at the same time the overlying nail becomes thinner and thinner, and ultimately separates off. The prognosis for the eventual 'restitutio ad integrum' of the nail is good, but as this is dependent upon the growth of new nail the lesion lasts a long time. It is important to be able to recognize this lesion, as it may be the only sign of syphilis present at the moment when it comes under observation. Heller has never seen more than one nail affected.

Occasionally one or more of the nails in a syphilitic patient may show whitish opaque spots, which become depressed and necrosed, and develop into small holes which extend through the nail down its bed. Dr. R. W. Taylor⁷⁹ has seen several well-marked instances of this form of local necrosis. Possibly this is the same lesion as we have described under the head of the isolated papule, although in some of Taylor's cases more than one nail was affected.

Occasionally the most marked feature of the *onychias* is a

tendency for the nail either partially or wholly to scale off and become separated from its bed. This type of nail affection is most commonly seen in the congenital syphilis of infants who have a bullous eruption on their extremities ; but it is also sometimes to be observed in adults with acquired syphilis.

There is also a form of hypertrophic onychia in which parts of the nail are greatly thickened, apparently by horny growths coming from the deeper layers and forming rough ridges.

One or more of the nails in syphilitic onychia may exhibit an arrest of growth at its base. This may result in the nail having the appearance of being pinched up laterally, or, as Sir Jonathan Hutchinson calls it, 'filberted.' Cases have also been described in which the arrest of nail growth has been complete—a red surface free of nail appearing at the root, and gradually extending until the old nail falls, leaving the matrix uncovered and dry.

Finally, a less serious affection of the nails in syphilis has recently been described by Heller.⁸⁰ He mentions two cases in which the acquisition of syphilis was followed by the development of longitudinal striations upon the nails, but in which no grave alteration took place in the structure or nutrition of the nail.

Perionychia. The specific inflammation may commence in the skin around the nail and subsequently extend into the bed and matrix of the latter, or, on the other hand, it may pass from the diseased nail into the surrounding tissues, and in either case we shall have a 'perionychia'.

Some cases begin with a marginal thickening, complete or incomplete, around the nail, or a sub-papular, scaly infiltration which may extend beneath the nail. The process is generally very chronic, and the nail gradually becomes dull, rough, and

irregular, and transverse furrows appear. The condition may clear up, but sometimes ulceration ultimately takes place at the border; it then extends below and separates the nail from the matrix, just as so often happens with an ordinary ingrowing nail. This sequence of events may be regarded as due to a modification or excessive development of an isolated papule of the nail-bed.

In suppurative perionychia, there is a diffused reddening and swelling of the distal end of one or more of the fingers or toes (sometimes all are affected), with subsequent invasion of the nail. The digits become much enlarged at the end, and may ultimately show fungating granulations, where the thickened and altered nail edges have been pressed into the surrounding swollen tissue. If the neighbouring syphilitic infiltration rapidly invades the nail-bed, localized ulceration, with the accumulation of foetid pus, may result. These cases are very severe and require vigorous surgical treatment. In a case under the care of one of the writers (P. A.), a man with old-standing syphilis had a finger affected with ulcerative perionychia, which closely resembled epithelioma. To the surprise of many who saw the patient, the condition cleared up under the influence of potassium iodide. Ulcerative onychia or perionychia is by no means a common manifestation of syphilis. In ten years' observation, during which he saw 6,047 cases of syphilis among males, and 745 among females, Bergh⁸¹ only found four cases of ulceration of the nails among the men, and one among the women. There is no evidence that involvement of the nails is especially prone to occur in cases of malignant syphilis.

CHAPTER VII

ON THE DIAGNOSIS OF CUTANEOUS SYPHILIDES

WE have already attempted to describe in the previous chapters of this article the different forms in which syphilis may manifest itself upon the skin. These forms exhibit every conceivable variety of size, shape, colour, consistence, surface, situation, and distribution. It follows, therefore, that circumstances may arise in which it may be necessary to make a diagnosis between syphilis on the one hand and almost any other type of skin affection on the other. As a rule the problem is not a difficult one, but many cases have been recorded in which the true diagnosis was so doubtful that dermatologists of the greatest experience were unable to agree upon it. It is true that in the last few years syphilis has been added to the list of those diseases in which we can appeal from the clinical physician to the clinical pathologist, whose verdict indeed is final ; but it is hardly possible to adopt this course as a routine, and even were it possible there are grave doubts as to whether it would be desirable to do so. To lean too heavily upon the pathological staff is to discourage the habit of close and accurate clinical observation of disease which is the first qualification of the physician. Syphilis had been diagnosed by clinical methods alone with considerable precision for a great many years before the *Spirochaete pallida* had been detected or the peculiar properties of syphilitic sera had been demonstrated. Those abstruse cases above referred to, which have taxed the diagnostic skill of the very elect, will not account for a tithe of

the errors that have been made in diagnosing syphilis. These errors are due almost invariably to far different causes ; to an incomplete examination of the patient, to a faulty appreciation of the history of a case, to an *a priori* conviction in the mind of the observer that the attendant circumstances being as they were the patient could not have contracted such a disease. It is to such causes as these that most mistaken diagnoses are to be ascribed, and it is by a correct appreciation of the clinical facts that errors of this kind can be avoided.

In discussing the diagnosis of the cutaneous syphilides it will be convenient of course to take separately the early and the late forms, as for the most part they are clearly differentiated from one another and therefore present different problems of diagnosis. Roughly one may say that the early syphilides have to be diagnosed from the generalized skin eruptions, while the later forms have to be diagnosed from localised lesions of limited distribution. As regards the early syphilides, of course in every case where syphilis enters into the question at all, or in fact even where it does not, in addition to noting with the greatest care the peculiarities of the skin eruption the condition of the mucous membranes must be ascertained. To examine the orifices is one of the golden rules of diagnosis. In many doubtful cases the detection of mucous patches on the tongue or fauces, of condylomata in the region of the perineum, lesions which are absolutely pathognomonic of syphilis, will settle the question at once. Other signs of syphilitic infection which may give valuable information are the general enlargement of glands, especially in situations where the glands cannot as a rule be palpated (e.g. in the suboccipital and epitrochlear regions), a certain degree of anaemia, and the history of recent headaches, the discovery of a primary

lesion or of its scarred remains. Wherever corroborative evidence of this nature can be obtained there need be no hesitation in making a positive diagnosis. Greater difficulties arise when the rash is the only physical sign which can be discovered. Some writers of great authority have gone so far as to state that it is never permissible to diagnose syphilis on the characters of the skin eruption alone without other corroborative evidence, but we venture to suggest that this is carrying caution to an extreme. At any rate it will not be unprofitable to discuss the differential diagnosis between cutaneous syphilis and other skin eruptions from a purely dermatological aspect.

First of all we shall consider the roseola, because the roseola is most common and is the type of rash which most often occurs in a pure form, that is to say the eruption not infrequently consists of roseolous macules only, unmingled with papules, while in a papular rash some few macules can almost always be discovered. The following are the chief conditions with which the roseolous syphilide is most likely to be confused :—

1. The acute exanthemata—morbilli, rubella, and scarlatina.
2. The various forms of erythema.
3. Seborrhoea.
4. Certain drug rashes.
5. Pityriasis rosea.

1. All the acute exanthemata have at one time or another been confused with the syphilitic roseola, especially when either the roseola has been preceded by an exceptional pyrexia, or if the exanthema exhibits somewhat anomalous symptoms. The diagnosis in these cases will always be cleared up if the clinical course of the eruption be followed up, but at the onset

of the rash it is sometimes a little difficult to be sure with which condition one has to deal. A good example of the way in which doubt may arise is shown in the case of Professor Fournier mentioned elsewhere in this article, in which severe pyrexia and grave constitutional symptoms induced the provisional diagnosis of typhoid although the subsequent course of the disease showed that syphilis was the true explanation of the condition. We may also, in this connexion, mention the case of a woman who was admitted into a surgical ward of a London hospital for the purpose of having a lumbar abscess opened; within a few days she developed pyrexia with other constitutional symptoms followed by a rash, and she was thought to be suffering from measles; when, however, the rash faded it left pigmentation behind it. This fact alone was sufficient to exclude measles, and, moreover, on closer inspection the scar of a primary chancre was found on the lower lip.

2. From erythematous eruptions, however generalized, it is not as a rule difficult to distinguish the roseolous syphilide. The following are the chief points of distinction:—

(1) The erythemata particularly affect the backs of the hands and wrists. These positions are above all avoided by the syphilitic roseola.

(2) The erythemata are raised by exudation above the surrounding surface, but there is no deep infiltration such as is always palpable after a roseola has been present for a very few days.

(3) Erythematous lesions are larger and less uniform in size than roseolous macules.

(4) In erythematous rashes the occurrence of vesicles and bullae is not infrequent.

(5) Erythemata are often associated with some digestive disturbance.

(6) With erythemata there is almost always present subjective sensations of burning or pricking.

Closely allied with the erythemata are the different forms of urticaria, but this condition is still more sharply marked off from the roseolous syphilide than are the erythemata. It may be distinguished by the following characters :—

- (i) Severe burning and itching.
- (ii) Its ephemeral character.
- (iii) The saliency of the wheals.
- (iv) Their whitish colour.

3. Cases of seborrhoea sometimes resemble an erythematous syphilide in its declining stage, particularly in colour, but the spots are more scaly and greasier to the touch than those of the syphilide. Seborrhoea is also more localised, being limited to the central parts of the chest and back and the proximal portions of the extensor surfaces of the limbs, and it is, moreover, usually accompanied by marked seborrhoea of the scalp. Itching, too, is commonly experienced by the patient. Another point of distinction is found in the fact that seborrhoea yields readily to treatment with a weak sulphur ointment. The most troublesome cases in which to make up one's mind are those where an individual known to be the subject of seborrhoea has been exposed to a possible syphilitic infection.

4. The drug rashes which most often may be confused with a roseola are those due to quinine, belladonna, chloral, and especially antipyrin, and with these may be mentioned the erythema that sometimes follows vaccination. The chief characters whereby these rashes may be distinguished from the

true roseola are, apart from the absence of concomitant syphilitic phenomena, their transient duration, their frequent occurrence on the extensor surfaces of the limbs, and their common accompaniment of marked subjective symptoms. The clinical history of these cases is often obscure and it is usually impossible to obtain the exact prescription which has caused the eruption, particularly if the patient is a believer in patent medicines, but very commonly some hint of its nature can be elicited by careful inquiry.

Arsenic, of course, is well known as a drug which affects the skin, but it has not as a rule been classed among those which may simulate syphilis. Recently, however, a remarkable rash has come under the notice of one of the writers (P. A.) in a young medical man who had been taking arsenic until the development of toxic symptoms. The rash, consisting as it did of non-pruritic macules which faded with slight desquamation and left brownish pigmentation, resembled a macular roseola so completely, that the patient himself and other medical men thought that it must be syphilitic. There had however, been no possibility of infection, nor was there the slightest evidence of any other symptom of syphilis. It disappeared in a few weeks after discontinuance of the drug, and without any antisymphilitic treatment.

We take this opportunity of mentioning certain other drug rashes which are liable to be mistaken for syphilis, although not for an erythematous syphilide; these are the iodide and bromide eruptions. Iodide eruptions are notoriously varied in type, and when a crusted form is assumed they are liable to be confused with nodular and ulcerative syphilides. Many times it has happened that iodide of potassium has been administered in perhaps increasing doses as a remedy for the very condition

which it has produced. It should be noted that the parts chiefly affected by iodide rashes are the face and limbs. Bromide eruptions usually exhibit lesions of a larger size than those of iodide origin, and they are liable to be mistaken for true rupia. The site of election for these rashes is the legs. All drug eruptions have this point in common, that they are soon ameliorated by a discontinuance of the exciting poison.

5. *Pityriasis rosea* has not infrequently been regarded and treated as a syphilitic eruption, and in some cases, particularly in its macular form, it must be admitted it has a strong resemblance to an erythematous syphilide in its declining stage. The distribution is similar in that the trunk is the most affected part, while the proximal portions of the limbs are not free from the rash; the face as a rule is exempt, and the colour is not very unlike the hue often associated with syphilis. In one case in the experience of one of the writers (P. A.) a medical man had ordered mercury for a suspicious rash on the chest of a lady, believing from its appearance that it was really of a syphilitic nature. This greatly perturbed the husband, who saw the prescription, and it required some tact to disabuse his mind of the notion that his wife had syphilis, and at the same time to exonerate the doctor. In making the diagnosis attention must be paid to the following peculiarities of *Pityriasis rosea* :—

(1) The maculae have a yellow centre surrounded by a rosy ring.

(2) The maculae are covered by branny scales, and these are usually arranged so that their bases are attached to the periphery of the macule and their free ends all point in towards the centre.

(3) The eruption begins as a rule on the upper part of the trunk and gradually extends downwards.

(4) There is very commonly a large initial or so-called 'herald' patch.

Finally certain forms of *tinea* may occasionally require to be distinguished from a roseolous syphilide, although of course a microscopical examination will at all times clear up the matter. These forms are *Tinea versicolor* and *Tinea circinata* when widely disseminated. The patches of *T. versicolor* are irregular in size, often confluent over large areas and yellowish brown in colour. They are covered with furfuraceous desquamation, chiefly affect the chest, and, but very rarely, the face or limbs. *Tinea circinata* when widely spread over the body shows large patches which may be of irregular shape or arranged in rings. It is more likely to be confounded with the rare circinate erythematous syphilide than with the ordinary form.

As we have seen in a previous chapter the chromatic or leucodermic syphilide is to be regarded as a development of the roseola, and it is therefore appropriate that we should here discuss its differential diagnosis. This is very important because it is extremely persistent, and may therefore supply incontrovertible evidence of the existence of syphilis long after all other signs of the disease have passed away. The points upon which most stress is to be laid are :—

1. The pigmentation is confined to the neck, where it is most marked at the back, but extends often towards the axillae.

2. The pigmentation is not uniform, but consists of a brown groundwork which is broken up by white spots of varying size and therefore presents a dappled appearance.

3. It is usually seen in women.

4. The white spots are not sharply outlined and show a zone of gradually increased pigmentation around them.

The principal forms of pigmentation from which the pigmentary syphilide has to be distinguished are, Addison's disease, simple leucodermia or vitiligo, arsenical pigmentation, chloasma uterinum, and extensive freckling.

It is hardly possible to confuse a well-marked case of Addison's disease with a pigmentary syphilide confined to the usual situations, but it might call for consideration on the inspection of one of the very rare generalized pigmentary syphilides (vide Plates IV and V). In such a case Addison's disease is to be distinguished by the involvement of the face and hands, and by the presence of patches of pigment on the mucous membranes. The constitutional symptoms of the disease should also afford material assistance.

True leucodermia or vitiligo occurs usually in much larger areas than the leucodermic syphilide. It has, too, a much wider area of distribution, and the backs of the hands are commonly affected. Also it varies in intensity from one season to another, although being at least as persistent as the syphilide it seldom vanishes. Thibierge⁸² has recorded three cases of syphilis in patients previously the subjects of leucodermia.

Arsenical pigmentation is not unlike the syphilide under consideration, but the rain-drop appearance is characteristic, and it is widely distributed over the trunk, and is usually accompanied by arsenical warts on the dorsal aspects of the phalanges. A history of long continued administration of some medicine as a rule can also be elicited.

Chloasma uterinum is easily differentiated by its preference

for the face, particularly in the neighbourhood of the eyelids, also by the co-existence of pregnancy at all events during the stage of its development, but it may sometimes persist after that condition has terminated.

Adamson has recently published a case in which acne had caused much scarring and pigmentation, giving rise to an appearance which simulated to a marked degree the *Leucodermia syphiliticum*.

Other forms of pigmentation which may just be mentioned are freckles, the stains of urticaria pigmentosa, and the discoloration of leprosy, but they are hardly worth detailed consideration.

We have now to consider the differential diagnosis of the various forms of papular syphilide. It is most convenient to discuss them altogether, because the forms of papular syphilide merge insensibly into one another, and to consider them separately would entail needless repetition. Naturally the conditions from which the papular forms have to be diagnosed are widely dissimilar from those which have been discussed in dealing with the roseola. The chief are *psoriasis*, *lichen planus*, *lichen scrofulosorum*, *lichen planus acuminatus*, the nodules of lupus and of leprosy. Other conditions which have been mistaken for syphilides, but with less ground for error, are the common acne, papular and follicular eczema, pityriasis rubra pilaris of Devergie, keratosis pilaris, and molluscum contagiosum. We may perhaps repeat here what has been stated above, i.e. that the surest way of making a diagnosis of syphilis during the period of efflorescence is by the discovery of other signs of the disease, but here we will discuss only the purely dermatological distinctions that can be demonstrated.

The most salient features of a papular syphilide, and those upon which most stress is to be laid from the point of view of diagnosis, are the firm consistency of the individual papules due to the cell-infiltration which takes place, the multiformity of the eruption (for papules of every variety with macules interspersed are frequently found side by side), and the colour, which is usually the typical 'raw ham' or coppery hue traditionally associated with the disorder. Of all the dermatoses which have to be distinguished from syphilitic eruptions there is no doubt but that the most difficult problems are presented by psoriasis; the very name 'syphilitic psoriasis', so often applied to the small flat papular syphilide, suggests the confusion that may arise. It is not, however, the common large-patched form of psoriasis which is likely to give rise to difficulty, but the 'guttate' and 'punctate' varieties. The syphilide may often be scaly and the true colour thereby hidden, while on the other hand a case of psoriasis which has been under treatment may be free from scales to a large extent and exhibit a tint very like that of syphilis. In addition, however, to the firmness of the papules and the colour (we do not allude here to the multiformity, as the lesions of psoriasis are nearly as varied as syphilitic papules), stress must be laid on the distribution of the rash. In psoriasis the typical scaly patches are always to be sought on the extensor surfaces of the limbs, and especially on the points of the elbows and knees, positions which are avoided by the syphilide, which prefers the flexor aspect of the limbs and frequently extends down on to the palms and soles. Psoriasis is also found frequently on the backs of the hands, a syphilide very rarely. And in psoriasis the nails are frequently pitted or lifted up from their bed by a dry scaly outgrowth. Again, although both eruptions

are frequently scaly, certain distinctions can as a rule be made out in the nature of the scales. Those of psoriasis are much thicker and less friable than those of the syphilide, and often in the latter they are reduced to a mere collar or fringe round the flat centre. Moreover, on removing the scales with some blunt instrument the true surface of the syphilitic papule is laid bare, without rupture of the congested papillae; while when the psoriasis patch undergoes the same test, a mere erythematous macule is discovered on which haemorrhagic points may oftentimes be observed, and at the same time the fictitious infiltration which may be imparted by the scaly crust also disappears. Nevertheless, after all these points have been considered, the clinical diagnosis between an atypical case of psoriasis and a papulo-squamous syphilide occasionally remains doubtful. A case of this kind was shown by Dr. Dore⁸³ at the Dermatological Section of the Royal Society of Medicine in December, 1908. Clinically it was not possible to be sure with which condition one had to deal, but ultimately the course of the disease showed that it was syphilis. Psoriasis may also possibly require to be diagnosed from the large papular or nummular syphilide, especially when it is in the form of large patches which have been under prolonged treatment, but the application of the above principles will always settle the question.

The next affection of the skin which may bear a resemblance to a papular syphilide is *Lichen planus*. The primary lesion of this disease is a small papule which as a rule is about the size of a hemp seed, but may be somewhat larger. It is distinguished from the papule of a syphilitic eruption by its accurate delimitation and polygonal outline. It may be crowned by an adherent greyish scale. The favourite sites for this eruption are the shins, wrists, the inner sides of the thighs near the knees, and

it is sometimes extensively generalized over the trunk and limbs. Frequently the papules seem to follow a roughly linear distribution. Other points which help to differentiate it from a syphilide are its colour, which is typically violet in tinge, and the fact that it is almost invariably accompanied by intense itching. If the lesions have persisted for some time they leave behind them a pigmentation which, it must be admitted, is very difficult to distinguish *per se* from the pigmentation left by a syphilide. Certain special forms of *lichen planus* are described under the names *lichen planus annularis* and *lichen planus acuminatus*. In the former, as the name implies, the typical papules are collected into rings, and are then liable to be mistaken for a circinate syphilide. It is distributed in the same way as *lichen planus*, and, like it, is accompanied by intense itching. *Lichen planus acuminatus* is an extremely rare condition, first described by Hebra, and his cases all terminated fatally. It is now a long time since similar cases have been observed, and it is doubtful whether this type of disease still exists. According to Sir Malcolm Morris⁸⁴ it is identical with the condition known as *Pityriasis rubra pilaris* of Devergie. In both of these types of eruption there are numerous red-pointed papules, tipped by horny caps, which may run together to form rough, grater-like patches. On the backs of the hands and fingers, however, they always remain discrete. But while in *lichen acuminatus* the constitutional symptoms are grave and the pruritus is extreme, *pityriasis rubra pilaris*, although extremely chronic, is a relatively benign affection in which the pruritus is not excessive. The colour alone is likely to cause difficulty in diagnosing these conditions from syphilis.

Lichen scrofulosorum is a follicular disease and occurs in

young tuberculous subjects, rarely after adult life has been attained. The eruption presents no subjective sensations, and, as in syphilis, some of the lesions occasionally become pustular and others scaly. The papules, which are greyish in colour, are arranged in groups about the orifices of sebaceous glands, and each papule is surmounted by a small scale. It is distinguished from the small follicular syphilide by the grouping, by the colour, and by its distribution, which is limited to the abdomen, back, and flanks. Signs of tuberculous infection can often be discovered. Cases, however, have been shown in which it was extremely difficult to distinguish clinically between *lichen scrofulosorum* and this form of syphilide.

Under certain circumstances confusion may arise between multiple patches of lupus and a papular syphilide, especially of the large nummular variety. But even when multiple the lupus patches are scarcely so abundant; they last much longer and spread irregularly, they are also extremely irregular in distribution. They almost invariably occur in children, and as a rule make their appearance after an attack of measles. When inspected with the diascopé the typical apple-jelly tissue of lupus can be detected, but here it must be mentioned that a syphilide may also exhibit a brownish colour when all the blood has been pressed out. Of course the pathologist can always be called in to settle the question.

Occasionally leprosy may have to be diagnosed from a papular syphilide, for dark brownish-red papules may certainly make their appearance in that disease, but they as a rule attack first of all the face and ears, and often are massed on the brow, where they cause a deepening of the furrow at the root of the nose. This gives a leonine expression to the

features, which is characteristic. The papules are extremely persistent and contain large numbers of the *Bacillus leprae*. The detection of the bacilli of course settles the diagnosis at once.

Acne vulgaris has sometimes been diagnosed as a syphilide, especially on the ground of the dark red indurated lesions which may occur in cachectic subjects. The limitation, however, of the eruption to the face and back, the greasy skin and the association of the eruption with comedones, the primary lesions of acne, should enable the correct diagnosis easily to be arrived at (vide Plate VI). When, on the other hand, syphilis occurs in a patient already the subject of acne, the original condition may to some extent mask the additional infection.

Eczema, too, may simulate syphilis in colour, but the primary lesion in eczema is a vesicle, not a papule, and the subjective sensations of eczema—itching, burning, and pain—far exceed anything experienced in the course of a syphilitic eruption.

It has happened that rupial and generalized ulcerative syphilides have been confused with ordinary impetigo and furunculosis, or rather, more often impetigo and widespread purulent infections of the skin have been mistaken for syphilitic eruptions. This should not often occur, for the depth of the ulceration and the peculiar heaped-up quality of the crusts are very characteristic of syphilis, and, moreover, in the severe syphilides there are almost always lesions on the mucous membranes to clinch the diagnosis. The occurrence of phagedaena, however, is sometimes mimicked by severe streptococcic ulcerations, as for instance in the case depicted in Plate XXVII and one of the writers (P. A.) has described a case,

illustrated in Plate XXVI, in which a syphilitic eruption resembled very closely *impetigo gestationis*.

Molluscum contagiosum has been known to be treated as a papular syphilide for a long period, but the umbilicated character of the papules and the fact that they yield the typical caseous material on pressure should be sufficient to prevent this error.

Keratosis pilaris has occasionally raised a doubt as to its true nature ; but in this affection the discrete spiny papules occur in localized areas, usually on the outer part of the upper arms, the outer part of the thighs and buttocks, the inner part of the thighs near the knees, and sometimes on the dorsal and ventral aspects of the trunk : they are usually grey-white in colour and are far more persistent than syphilitic papules.

Of the rare skin diseases which may require to be diagnosed from a syphilide, we may briefly mention Darier's disease, or *Keratosis follicularis*, which at one stage has a great resemblance to syphilis in colour ; but the permanence of the eruption, its usual commencement in early life, and the dilated condition of the pilo-sebaceous ducts in the older follicular papules are sufficiently distinctive.

According to Lang (loc. cit.) the rare disease *Lymphangioma tuberosum*, of which he gives a figure (p. 182), and the *Pityriasis lichenoides chronica* or *Dermatitis nodulans psoriatiformis* of Jadassohn may both be mistaken for a papular syphilide. They both may simulate the characteristic colour, and the numerous disseminated raised papules which they exhibit may be very similar in size to the small papular or lenticular form. They are, however, distinguished by their anatomical structure, chronicity, rebelliousness to treatment, absence of any tendency to involution, and absence of the usual concomitant phenomena.

Parakeratosis variegata also has been said to require care in differentiation from syphilis.

When we contemplate the later cutaneous syphilides from a diagnostic standpoint the problem that confronts us is of a totally different nature. We have now to distinguish the manifestations of syphilis from conditions which resemble in no way at all the conditions with which the early syphilides are liable to be confused. That this should be the case is easily comprehended from a consideration of the distinctions (upon which stress has been laid already) between the early and late lesions. Early syphilides are widespread and symmetrical. The late are scanty and asymmetrical. In the former the lesions themselves are small in size as a rule ; in the latter they are often extensive ; the early syphilides are frequently accompanied by lesions of the mucous membranes, the late are seldom. Lesions of the mucous membranes of course do occur in late syphilis, but they are usually independent of cutaneous changes. In early syphilides ulceration is exceptional, in the late it is common. As a result of these contrasts the early syphilides have to be distinguished, generally speaking, from 'rashes' of all kinds, as indeed we have seen already, while the late syphilides have to be diagnosed from other granulomata and from the various descriptions of new growths. To a large extent the problems of the diagnosis of single swellings, patches, or ulcers in connexion with the skin, may be said to lie between the three conditions: tubercle, syphilis, and new growth. By this we do not mean to infer that tubercle and new growth are the only conditions which can give rise to appearances which may require some care in differentiation from syphilis. There are, indeed, many others—for example, leprosy, actinomycosis, lupus erythematosus, Bazin's disease,

and, less occasionally perhaps, glanders and dermatitis artefacta. But in the great majority of cases tubercle, syphilis, and new growth form the trio from which a selection has to be made. Of course the problem can always be solved with the help of the pathologist and the microscope, but here, as above, it will be our endeavour to indicate the lines upon which it is possible in most cases to draw correct distinctions between perplexing appearances solely on clinical grounds. To some extent the ulcerative and the non-ulcerative forms of tertiary syphilis have to be diagnosed from different conditions, but in many cases this is not so, because just as a non-ulcerative syphilide may become ulcerative, so a case of lupus, or of neoplasm, at first free of ulceration, at a later date may become ulcerated. Therefore any attempt to classify the problems of the diagnosis into two parts, according as we have to deal with ulcerated or non-ulcerated lesions, would lead to much needless repetition, and it will be more useful if we consider in order the various conditions with which tertiary syphilis may be confused, and point out in each case the chief points wherein resemblance and contrast can be demonstrated. We shall, of course, begin by reference to the commoner aspects of the problems which present themselves in this connexion.

The most frequent of all the conditions from which it is necessary to distinguish tertiary syphilis is undoubtedly tuberculosis. In its turn each of the varied modifications of tertiary syphilis may have to be diagnosed from some form of tuberculosis of the skin, whether it be *lupus vulgaris* or tuberculous ulceration or scrofuloderma. Both cause chronic inflammation and give rise to a certain formation of new tissue of the type known as a 'granuloma'. Both are chronic in their course. Both are liable to suffer ulceration. Both are found frequently

upon the face. On the whole, one may say that tuberculous ulceration is more likely to be confused with the ulcerative forms of tertiary syphilis, while lupus more nearly resembles a nodular syphilide. Usually there is not much difficulty in making a correct clinical diagnosis between tubercle and syphilis, although very puzzling cases are met with occasionally. To discuss the points which must be attended to: In the first place the history may give a valuable indication. Tuberculosis of the skin is essentially a disease of childhood, perhaps even more so than tuberculosis of other organs, while syphilis is associated with adult life, and moreover the type of syphilide which is most likely to give rise to difficulty often only appears some years after infection. It will frequently happen that a case may first come under notice at the age of thirty or thereabouts, but if it is one of lupus there very likely will be a history of trouble extending back into childhood. Even if the mere length of the clinical history be not sufficiently distinctive in itself, it must be remembered that while both are chronic diseases, tubercle runs a course far more slowly than does syphilis, and a case of lupus will take years to reach dimensions that may be attained by tertiary syphilis in the same number of months. A square inch per annum is a quick rate of progress for a patch of lupus; when it has reached a size of about two square inches it is best to measure the rate of progress of the growing edge, and that seldom exceeds half an inch per annum. A tertiary syphilide, on the other hand, may spread half across the face in a year. The information, therefore, which we may be able to obtain on this point and the proportion which exists between the extent of spread of the disease and the time during which it has been known to exist is important. It is, of course, obvious that if we can elicit a history

of previous syphilitic lesions on the one hand, or of tuberculous glands or joint disease on the other, the diagnosis is simple indeed; but this is a luxury with which it is usually necessary to dispense. Frequently, and especially in women, there is absolutely no history of any previous specific lesion whatever, and it is quite possible that they may even have had no miscarriages, and yet from the clinical appearances there is no doubt but that the patient has a tertiary syphilide. In examining a patient for evidences of past syphilis the principal parts to which attention should be especially directed are the tongue, the penis, and the back of the neck. On the tongue may be found evidence of old mucous patches in the shape of smooth bald spots and possibly of leukoplakia; on the penis a chancre sometimes leaves a scar, and further than that the scar is also sometimes the site of a tertiary syphilide itself. On the neck it is sometimes possible to find the *leukoderma syphiliticum*, particularly in women, and when present it is pathognomonic. This form of eruption is extremely persistent, and we have been able to settle the diagnosis of a bony swelling of doubtful character at a time which must have been many years after infection by noticing it. Typical tertiary scars may also be found upon the calves of the legs or in other situations, but in such cases there is usually no reluctance on the part of the patient to impart information. They feel that the evidence is too strong for them to minimize.

We have now to describe the clinical distinctions that are to be found between late syphilis and tuberculous affections of the skin. Where the syphilis takes the form of large gummatous ulcers which spread quickly, and if untreated show little tendency to heal—in short, are of the typical description—or, looking at the reverse side of the medal, in cases where a child

shows ragged ulcers with bluish undermined edges secreting a thin sanious fluid and connected with hard and enlarged caseous lymphatic glands, it is difficult to be drawn into error. Occasionally in severe cases of congenital syphilis ulceration may occur about the face which may be mistaken for a tuberculous process, chiefly because it happens to be in a child (and it must further be borne in mind that this type of child is quite likely to contract tuberculosis), but it should be easily distinguished from tubercle by the speed with which destruction of tissue takes place, by the characters of the ulcers, and of course by its quick response to treatment with iodide of potassium. The cases which present difficulty are those in which there is just an infiltrated patch of a rather indefinite colour, a little ulceration, and perhaps a scar in the centre where the pathological process has died away. Such cases are often found upon the face and in patients whose history affords no guide. The characters we have mentioned are common alike to both syphilis and tubercle.

The differences upon which under such circumstances we have to place reliance to distinguish clinically between tubercle and syphilis are somewhat subtle; an experienced clinician seldom is deceived at first sight, but it is difficult to put the reasons for one's impression into words. We can, however, draw attention to certain points of great importance, regard for which will often prevent confusion. The first of these is the intense hardness of the infiltration so constantly found in syphilis; this is particularly noticeable near the edge of the lesion, which often feels like a firm ridge under the finger. This is due to the engorgement of the tissue with plasma cells, easily demonstrated under the microscope. It is quite true that in lupus there is also an infiltration with cells—mostly of the small round variety—

but nevertheless the same sense of resistance is not felt. Closely connected with the nature of the infiltration is the method of spread in the two cases; in syphilis the lesion spreads by the advance of the hard edge, while in lupus we find outlying nodules making their appearance which by their gradual increase in size ultimately become fused with the main patch. The colour of the nodules of lupus is typically the brownish yellow, classically likened to 'apple-jelly'; this of course is frequently masked by the general hyperaemia of the whole patch, but it may easily be demonstrated by examination through a glass slide or watch-glass which is used to express the blood. If a patch of syphilis be examined in the same way, a faint brown stain may indeed often be observed, but no nodules stand out as they do in a patch of lupus. Stress should not be laid to any great extent upon the general colour of the patch; the 'coppery' or 'raw ham' tint which is associated with syphilis is often mimicked by the combination of brown nodule and hyperaemia found in lupus.

It is important to notice in what way the mucous membranes are affected, as they are liable to be attacked in either case. In lupus the disease often begins within the nasal cavity and then it gradually spreads outwards round the margins of the nostrils; in syphilis it is more usual for the skin to be attacked first, but the mucous membranes may be involved by direct extension of the diseased tissue. The form in which lupus affects the mucous membranes is by causing a gelatinous swelling; ulceration is not seen till the disease is in an advanced stage. In syphilis ulcerated and encrusted fissures are found from the beginning, and the loss of tissue may become serious. Not much information is to be gleaned from a consideration of the exact situation of the patches, for in either case

they may occur anywhere, but a favourite site for lupus is right in the middle of the face, with the nose forming a centre-point, while the forehead usually escapes. On the other hand, a tertiary syphilide more often begins in an outlying portion of the face—for example, near the temple or towards the angle of the mouth—and the forehead is frequently affected. As regards the character of the ulceration to which both tubercle and syphilis are liable : in syphilis this partakes of the type usual with syphilitic ulcers, and may be deep enough to affect the bone, but in patches on the face, of the sort we are now discussing, the ulcers do not attain a large size and are of regular shape. When the nodules are separate each ulcerates independently. In lupus the ulceration is frequently extensive, but does not penetrate deeply; heaped-up crusts which adhere firmly to the underlying raw surface are often present. In tertiary syphilides of the face incrustation is not a conspicuous feature.

The scars left by these ulcers differ a good deal. They are in both cases pale, but the syphilitic resemble normal skin more nearly than do those of lupus. One reason of this, no doubt, is that even if untreated the centre of a syphilitic patch may disappear without ulceration; untreated lupus never does so. The scar left by lupus is less supple and more tightly stretched over the underlying structures than a syphilitic scar; where it passes over the bridge of the nose it often shows a groove in it to mark the separation between the cartilage of the septum and that of the alae of the nose. It is, too, often scored by the lines of many telangiectases, and unless the treatment has been exceptionally successful the remains of nodules always remain apparent. The contraction and deformity due thereto is often considerable. In

syphilis, on the other hand, unless there has been great loss of tissue, and that does not happen with the form of lesion which we are now discussing, the scar is simply slightly depressed and depigmented. These are the chief points to which attention must be directed in order to distinguish tertiary syphilis from *lupus vulgaris*; we shall now proceed to discuss the diagnosis between tertiary syphilis and *lupus erythematosus*. This is sometimes a still more difficult task; much the same points must be attended to, but the difficulty is greater because *lupus erythematosus* is much more indefinite in its characters than *lupus vulgaris*.

Lupus erythematosus is really a persistent erythema typically situated like a saddle upon the nose and extending thence more or less symmetrically over the cheeks, and is often accompanied by outlying lesions of the same type on the ears and less commonly upon the scalp and hands. In addition to the erythema the lesions often show scaliness, and an enlargement and plugging of the follicles is not uncommon. If sections are examined under the microscope there is nothing to see except a dilation of the blood-vessels, together with a moderate amount of small-celled infiltration and some hyper- and para-keratosis. Clinically the hard infiltration upon which we have laid so much stress in the case of syphilis is absolutely absent. The scar left by *lupus erythematosus* is far less conspicuous than that of the tertiary syphilide; in a favourable case it is hardly visible at all, and seldom is in the slightest degree depressed. There are two excuses for mistakes in differentiating *lupus erythematosus* from syphilis: firstly, when there is a syphilitic patch in which the infiltration is very unusually deficient, and, secondly, when a patch of *lupus erythematosus* shows scars of such unusual depth as to indicate

loss of tissue. We can recall two cases, one of each variety, which have occurred during the past two years in the practice of St. Bartholomew's Hospital. In one of them a woman appeared with a patch near the lower lip which, although rather indefinite, seemed to conform more nearly to *lupus erythematosus* than any other condition ; at any rate there was no infiltration to suggest syphilis. She was treated with ionization and large doses of salicin, under which she improved up to a certain point, but then remained in a stationary condition, a sequence of events by no means unusually met with in the treatment of *lupus erythematosus*. However, in some way or other the suspicion of syphilis was aroused, and after a short course of iodide the lesion entirely disappeared. Unfortunately, no pathological examination was made in this instance. The other complementary case was that of a soldier who had been in India, and therefore was very likely to have had syphilis. He had a number of persistent scaly patches symmetrically arranged over his face, which in some places had healed, leaving well-marked depressed scars. He had been treated as suffering from syphilis without success. The diagnosis of *lupus erythematosus* was ultimately made and confirmed by a biopsy. He made a complete recovery under the influence of ionization with zinc, and well-marked scars were the only trace left of his former condition. This case was shown at the Dermatological Section of the Royal Society of Medicine as a case of *lupus erythematosus* with scarring suggestive of syphilis.⁸⁵

Psoriasis, which in certain of its protean forms is so fruitful a source of difficulty in the diagnosis of the early syphilides, is also liable to be confused with some of the later forms. It is just possible that it might be mistaken for a nodular syphilide, although ordinary care should prevent this error

from being made. It is, however, far more difficult to distinguish psoriasis of the palms and soles from the late squamous syphilide of the same regions. Both are very chronic, and are associated with a considerable degree of hyperkeratosis. Psoriasis, however, is commonly symmetrical; that is to say, both hands or both feet are usually affected, and frequently patches are to be discovered upon other parts, and the nails are usually frayed or pitted. In syphilis the lesion is generally found only upon one hand (although not invariably), and there is always a considerable amount of infiltration in the edge of the patch. Pure hyperkeratosis or tylosis, unaccompanied by any inflammation, which is usually a congenital peculiarity, is distinguished by the absence of any redness or infiltration at the edge, and by the fact that the hyperkeratosis is always most marked at the points of greatest pressure. Plate XXIII is an illustration of a remarkable case under the care of one of the writers (P. A.), which showed inflammatory and hyperkeratotic changes which persisted for some twenty-five years, and was several times shown as a case of psoriasis. However, ultimately it was decided that it was syphilitic, and it improved greatly under the influence of potassium iodide.

The diagnosis of tertiary syphilis from new growth is of course very important, but the distinction has not to be made so often in the case of the skin as in dealing with enlargements of bone and in ulcers of the tongue. Occasionally, however, the question arises in regard to longstanding gummatous ulcers or hyperkeratotic patches. The varieties of tumour from which syphilis of the skin has to be separated are epithelioma and rodent ulcer. The chief clinical points of distinction are that in the case of an epithelioma the spreading ulceration is always preceded by formation of new tissue,

which shows itself as a hard and rolled everted edge. In a gummatous ulcer the edge is seldom indurated, although before ulceration takes place the hardness of the infiltration is noteworthy, as indeed we already have insisted. The early involvement of glands is usual in epithelioma, whereas in gummata the glands escape unless there are serious septic complications. Rodent ulcer shares to a considerable extent the characteristics of epithelioma except that it runs a much slower course and the glands are never affected. Attention should also be paid to its preference for certain situations; it occurs almost invariably upon the face and usually near the inner canthus or upon the lateral aspect of the nose, sometimes upon the forehead. In those rare instances where multiple rodent ulcers occur the diagnosis may be very difficult, and can only be settled by the intervention of the pathologist. Such a case was published by Adamson⁸⁶ about two years ago. It must be remembered that syphilitic ulcers of long standing (and not all of them are treated with success), are liable to assume malignant characters. An illustration of a case in which this happened is shown in Plate XXI. Another condition which must be distinguished from tertiary syphilis is leprosy. The nodules of this disease are sometimes not unlike syphilitic nodules and also affect the face. They are, however, usually accompanied by other evidences of the disease, and the diagnosis can always be settled easily by the excision of a small portion, in which large numbers of the *Bacillus leprae* will be found. They are usually massed together in large groups upon the forehead, and often give a sort of leonine expression to the countenance. It is but very rarely in this country that this problem will arise.

More often Bazin's disease will perplex the diagnostician.

This condition consists of infiltrated subcutaneous nodules, often of a size comparable with that of a pigeon's egg. They frequently soften and ulcerate, giving rise to ulcers of very much the shape and characters of broken-down gummata. They are slow to heal, and leave a pigmented depressed scar, in fact more depressed than that left by a gumma of corresponding size and with more central pigmentation. They are usually situate, too, on the calf of the leg—as we have seen, an extremely common situation for gummata. They are, however, almost always found in females in early life long before the period at which gummata are common, and they belong to the class of eruptions known as Tuberculides. That is to say, they are associated with tuberculous lesions in other parts of the body. Sometimes, however, such lesions cannot be found. Another form of tuberculide, in which the nodules are much smaller than in Bazin's disease, is the *Acne scrofulosorum*. This is often more widely distributed, being found upon the forearms as well as upon the legs, and is perhaps more likely to be confused with an earlier type of syphilitic eruption. Tuberculides are often seen in combination with a certain amount of circulatory stasis which causes the hands and feet to become blue and clammy, and is aggravated by cold weather. They are not common.

Actinomycosis should be mentioned in this connexion ; it is extremely rare, and is usually secondary to disease of the jaw. A case was once seen by one of the writers (H. D.) in which it primarily attacked the upper lip. The infection had evidently occurred owing to the patient's habit of chewing a straw, a habit in which he was indulging when he was seen. The appearance produced was that of a granuloma, which might possibly have been mistaken for a patch of tertiary syphilis. The diagnosis can always be made by finding the characteristic

granules in the pus, which under the microscope are found to be composed of the ray fungus.

Glanders might conceivably give rise to doubt in a chronic case, but the nasal discharge and the method of infection, which almost necessitates that the patient should have an occupation bringing him into intimate contact with horses, should prevent much difficulty. In any case the mallein test will settle the question.

Dermatitits artefacta may give rise to exceedingly chronic ulcers, but their position in places which can be easily reached by the patient, and their superficial nature, should lead to a correct interpretation.

Finally there is the rare disease known as *Sporotrichosis*. This is a disease of fungoid origin which manifests itself by chronic ulcers on the limbs or in the mouth. As yet all the cases which have been described have occurred either on the Continent or in America ; it has never been detected in this country.

There is still one more pitfall which must be avoided in the diagnosis of syphilis. The fact that a patient has had or is still suffering from syphilis does not render him or her in any way immune to other skin diseases. Scabies, eczema, pediculosis, psoriasis, or any other disease of the skin, may occur at the same time as syphilis : the only point is that it may be difficult to decide whether an affection in a syphilitic is really a syphilide or an independent affection. It may be that to certain diseases, such as purpura, dermatitis herpetiformis, pemphigus mycosis, and fungoides, patients who have had syphilis are more liable than those who have not ; for although syphilis may not be their immediate cause, their development may have been promoted by the lowered vitality of syphilized tissues.

CHAPTER VIII

SYPHILIDES OF THE MUCOUS MEMBRANES IN THE EARLY STAGES

SYPHILITIC affections of the mucous membranes are both numerous and important. They are particularly often found on the female genitals and in the mouth, but they may occur on any mucous surface, whether of the nose, the anus, or the external auditory meatus. Their importance arises in two ways. Firstly, they are the commonest source of contagion whereby the disease is spread, and, secondly, their presence is so constantly associated with the disease that they are often of the greatest possible assistance in making a correct diagnosis. In their pathology they are strictly comparable with the cutaneous manifestations of the secondary stage, simultaneously with which they appear, and they are composed of the same elements; the differences between the two groups of lesions are simply due to the physical and anatomical differences between skin and mucous membrane. Where indeed the skin, owing to some accidental circumstance, such as excessive fat, or excessive glandular activity, is kept constantly moist and bathed with secretion, and so shares in some degree the conditions common to all mucous surfaces, there the skin lesions lose their ordinary characteristics and simulate mucous lesions. Such conditions are commoner among the female sex than in males, and are especially to be found in the submammary regions and among the folds of an unusually pendu-

lous abdomen. One point wherein mucous differ markedly from cutaneous syphilides, is in their amenability to treatment. Lesions apparently of a severe type and involving considerable destruction of tissue, disappear under the influence of treatment with a perfectly marvellous celerity, long before their cutaneous fellows have so much as faded. This distinction, too, is due to the essential differences between skin and mucous membrane; the latter is far simpler in structure, and therefore can be renewed with greater rapidity than the more complex tissue.

Notwithstanding, however, the importance of mucous syphilides, it has, unfortunately, been usual in the past to describe them in a somewhat vague and indefinite manner, and all mucous lesions have been, as it were, lumped together under the designation 'mucous patch' or 'mucous tubercle' without any further attempt at classification. As Fournier well points out, to do this is just as absurd as it would be to class all the various skin lesions of syphilis under the one head, 'skin patches'. Fournier, who has studied the question with scientific precision, divides the mucous syphilides into four groups:—

1. Erosive syphilides.
2. Papulo-erosive syphilides.
3. Papulo-hypertrophic syphilides.
4. Ulcerative syphilides.

In addition to these forms, in all of which there is some destruction of the mucous membrane, there is often to be seen a more or less evanescent patchy erythema, corresponding to a faint roseola of the skin, but this erythema frequently develops into a more advanced type of lesion. Instances of this condition may be seen in the erythema of the fauces, without ulceration, which may commonly be observed in early secondary

rashes. It is quite possible, too, that the characteristic snuffles of the congenitally syphilitic infant may be due to a similar erythematous inflammation of the nasal mucous membrane, although it must be remembered that more severe lesions, which even may go so far as to cause necrosis of the nasal bones (hence the depressed bridge of the nose) are also met with in congenital cases.

Of Professor Fournier's four classes of mucous syphilides, the names of which are largely self-explanatory, the erosive consists simply of superficial erosions of the epidermis. These erosions are generally multiple, small, rounded, of reddish colour, and secrete a thin fluid, rich in spirochaetes. As they have practically no objective sensations, they are commonly overlooked. They occur frequently within the vulva, on the lips, the tonsils, and on the mucous membranes of the tongue. They are often difficult to diagnose from other erosions of non-syphilitic origin. For example, when occurring in the vulva, they must be distinguished from traumatic erosions, from simple vulvitis, and from herpes. On the tongue from the dyspeptic ulcer and herpes, and on the male genitals again from herpes; in fact, herpes is the chief condition from which the erosive syphilide has to be diagnosed in all the situations in which it may occur. These erosive syphilides present no difficulties in treatment; when in the mouth no special local medication is necessary, and when in the vulva a simple dusting powder is all that is required.

The papulo-erosive syphilide is the mucous tubercle properly so called. As the name implies, it is somewhat raised above the surrounding level, its surface is denuded of epithelium and is moist with secretion. As the erosive form corresponds to the roseolous macule among skin lesions, so does the papulo-

erosive correspond to the papule, and the transformation of the one into the other can readily be observed at the points of junction of the skin with mucous membranes.

This is the commonest of all the mucous syphilides, and also very typical in appearance. It is difficult to confuse it with any other condition. It is often seen within the female genital apparatus, in the region of the anus, and constitutes many of the so-called mucous patches so often found in the mouth.

The papulo-hypertrophic is less common than the preceding forms; it is the exclusive appanage of the filthy or of those whose special variety of pride forbids them to consult a doctor until the last extremity. It is found almost always in the anal and vulval regions, where it may attain an enormous size. Very rarely in the mouth, or on the tongue. When it occurs on the latter organ, however, it gives it a curious appearance, likened by the French to a toad's back. This form is really only a further development of the papulo-erosive which is always found in conjunction with it, and all gradations of size may be seen, from an ordinary mucous tubercle to a vast fungating, cauliflowerlike mass which on superficial examination might be mistaken for a new growth. The fluid secreted by these bodies is highly infective, and extremely offensive. Although not painful in themselves, they are usually accompanied by septic complications and painful glandular enlargement, which reduce the strength of the unfortunate patients to a low ebb. Happily, they are far more easily influenced by treatment than might be thought at first sight; the most formidable-looking lesions will yield in about six weeks to rest in bed, frequent baths, a moderate amount of cauterization, and the ordinary constitutional treatment of syphilis. The histological structure of these masses is chiefly marked by

a considerable but irregular hypertrophy of the epidermis, especially of the Malpighian layer, and by a profuse production in the deeper strata of embryonic cellular tissue, in which plasma cells are plentiful. To find the corresponding lesions among the cutaneous syphilides we must go to the framboesiform eruptions; these, however, are usually associated with a later period of the disease than the mucous forms we have just been considering, and they are far less common. The fourth capital variety of the mucous syphilides is the ulcerative. This form is most commonly found in the mouth and on the tonsils, but it occurs also in the genital regions. It is more than a mere erosion, there is a definite ulcer, which is not unlike ulcers produced by other means; for example, it resembles in the mouth a dental ulcer, or in the vulva that produced by a soft sore. It must not be confused with a tertiary lesion, from which it differs in being more superficial, and in being free from infiltration. This variety of syphilide is more difficult to cure than the preceding, but it yields to treatment, except in the mouths of excessive smokers. There it may persist very obstinately. Such are the four main varieties of mucous syphilide; they may, however, be very extensively modified in the different situations in which they may occur. These modifications will be considered in dealing with the different mucous tracts of the body, as we shall now do.

MUCOUS SYPHILIDES IN SPECIAL REGIONS

1. IN THE MOUTH AND THROAT

This is the commonest of all situations for mucous syphilides, for scarcely a case of syphilis runs its course without some lesion appearing in this region, lesions which may vary

in severity from a trifling erosion which may pass absolutely unnoticed, to grave ulcerations causing dysphagia and even dyspnoea. Men, owing of course to their common taste for tobacco and alcoholic liquor, are far more exposed to sufferings from this cause than women. All the four types of mucous syphilide may occur, but those which are attended by new tissue formation—the papulo-erosive and the papulo-hypertrophic, and particularly the latter—are far less common than the mere erosive and the ulcerative forms.

In the matter of situation, all parts of the buccal cavity are liable to attack, but the sites of election are the tonsils and the adjoining portions of the pillars of the fauces : the tongue and the mucous surfaces of the lips.

The clinical varieties under which these buccal syphilides may show themselves are extremely diverse. They may be single or multiple, as small as a grain of wheat or as large as a shilling, and several patches may become confluent. On the lips they even may destroy completely the mucous lining in its whole extent. In appearance they often show the vivid red tint of denuded epithelium, a tint which may be further deepened into purple, or lightened to a pink, or radically altered to grey or white, or to any intervening shade. It is not uncommon to see patches which are pale in the centre, while the periphery remains red. A well-known modification is seen when the grey coat of the patch becomes translucent, and it may then be described as opaline. An accentuation of this appearance gives us a lesion which bears a very strong resemblance to the false membrane of diphtheria. Such diphtheroid patches when found upon the tongue or lips do not cause any serious trouble in diagnosis, but when on the tonsil or fauces, may very easily be mistaken for true diphtheria. In illustration of this we

may mention that not so very long ago a man who was under treatment for syphilis, finding that his throat was causing him more than ordinary inconvenience, went to a hospital which he happened to be passing, in the hope of obtaining some temporary relief. The energetic house-surgeon immediately diagnosed his condition as diphtheria, and notwithstanding the protests of the patient, who made no secret of his syphilis, packed him off to a fever hospital, whence it took him two days to escape.

In shape, the buccal syphilides show no very striking characteristics. They have no great predilection for a circinate arrangement, but occasionally we see the lesions arranged in the form of rings, with a healthy centre—the annular type, or in segments of a circle or horseshoe-shaped—the arciform type. Some of the variations are due to the site on which the lesion is placed. On the lips they vary according as they are situated upon the inner or outer portion of the lip; if on the inner side, they consist of red erosions very like that left by a blister, when on exposed parts they are crusted. When situated at the angles of the mouth the lesions are generally divisible into two segments (one on each lip), which are in contact with one another when the mouth is closed, but separate when it is opened. The two segments are separated by a linear furrow, which corresponds to the fold of the lip. This furrow is almost always sore and painful, as it is being irritated continually by the movements of the lips. On the tongue several varieties of mucous syphilide may be mentioned, the differences among which are for the most part due to the relations of the different portions of the organ on which they are developed. Near the borders of the tongue they tend to follow the natural furrows, and appear as narrow elongated

lesions, sometimes red, and sometimes opaline. There is nothing in the aspect of these fissures which of itself should suggest syphilis. On the dorsum, also, similar fissures may sometimes be seen, and to be properly examined it may be necessary to wipe the surface with a cloth and unfold it, but more often are seen bare patches, denuded of epithelium. Such patches occurring in the midst of the normal clothed surface of the tongue, look as if the papillae had been shaved off, or, as Fournier says, like a mown field in the middle of a prairie. What has happened is that the papillae with which the tongue is usually clothed have first become inflamed and hypertrophied, and have then fallen off, leaving this bare surface. These patches are always sharply circumscribed and are of a deeper red than the surrounding parts. In shape they are very variable ; sometimes they are round, sometimes oval or irregular, and in size they are sometimes comparable with a lentil seed, but may extend almost over the whole dorsum of the tongue. This form of glossitis is further peculiar, in that it is unaccompanied by ulceration, or, as in the case of an ordinary erosive syphilide, by the loss of epithelium. It is only on the under surface of the tongue where they are as little as possible disturbed by the passage of food over them, that mucous patches become condylomatous in form. Here quite warty growths definitely raised from the general level may occur, but they cannot reach an elevation of more than a quarter of an inch, because they are speedily rubbed down and flattened out by the surrounding gums and teeth. The colour of these small condylomata is dead white, a much duller hue than the colour found on the opaline mucous patches which occur on the dorsum of the tongue. These lesions differ in an important particular from the commoner bare

patch, in that they secrete a discharge, while the bare areas found on the dorsum of the tongue are dry. From the tongue we proceed to the palate and tonsils, but we here encroach upon the region dealt with by Dr. St.-Clair Thomson in Chapter XX of this volume. We will only remark, therefore, that these regions also are very commonly affected by mucous syphilides of the ordinary types, and sometimes they are the seat of severe ulceration.

The diagnosis of buccal syphilides is by no means always easy, for there is no one definite character to which it is possible to point as pathognomonic of syphilis in contradistinction to all the other non-syphilitic conditions which occur in the mouth. Neither in its shape nor in its colour nor in the description of its edges or floor is there anything sufficiently typical to indicate immediately a syphilitic lesion. Rarely, indeed, if one of two forms be seen (neither of them common), a distinctive appearance is forthcoming. These forms are the flattened oval papule or pastille and the ring-shaped patch. In all other cases the diagnosis has to be made from a general consideration of all the information at our disposal, from what we can see, and from what the patient can tell us.

The chief conditions from which mucous syphilides of the mouth have to be diagnosed are herpes, dyspeptic ulcers, dermatitis herpetiformis, dental ulcers, simple fissures, and a condition which Fournier has called glossitis exfoliativa marginata, but which seems to resemble closely the wandering rash of the nomenclature of the College of Physicians.

Herpes is certainly one of the most important conditions which must be discussed now, and it must first be premised that we have to distinguish between the herpes due to a central lesion of the nervous system analogous to herpes zoster of the

skin, and the recurrent type of herpes analogous to herpes febrilis. The former is rare, while the latter is common, and, more than that, is especially common in young men who have had syphilis. The former is a painful and severe complaint, the latter is trivial, and is seldom noticed, except by educated patients, who are on the watch for signs of active syphilis, and who naturally mistake any lesion in the mouth for a mucous syphilide. In many ways it resembles the herpes of the genital organs. It is almost destitute of subjective symptoms, it quickly disappears, and it constantly tends to relapse ; often its presence exerts a most depressing influence upon the mind of the patient. The initial vesicles are seldom seen, but mere erosions are exhibited to the physician, and as he is consulted as a rule while the patient is still in the secondary stage of syphilis, he also, in all probability, will fall into the same error into which the patient has fallen, of regarding the condition as a mucous patch or patches. He will only be convinced of his mistake by the frequent relapses with which he will have to deal, and by the absence of response to antisypilitic treatment. Herpes may occur in any part of the buccal cavity, but most often on the tongue ; it may occur in either sex, but nineteen times out of twenty it is found in men. Besides on the tongue, where it most often affects the lateral borders, it is found most often upon the mucous lining of the lips and cheeks, usually simultaneously with its appearance on the tongue. The diagnostic points which may help to distinguish objectively a herpetic from a syphilitic lesion, are firstly, that round the broken herpetic vesicle may sometimes be seen the remains of the separated epithelium as a whitish collar. Next, that one can frequently find at a little distance from the point where the vesicles are thickest a few isolated lesions.

which do not exceed in size that of a pin's head; that is, a size far smaller than that of any mucous plaque. And, again, the boundaries of a herpetic lesion are typically circular, or if they do not complete a single circle, they are made up of segments of circles joined together, that is to say, the shape is polycyclic.

Subjectively, the appearance of herpes is frequently preceded by sensory disturbances of the tongue, such as shooting pains, neuralgia, itching, and invariably, when the eruption has made its appearance, it is sensitive, and gives more pain than an ordinary mucous patch.

As regards the aetiology of herpes it is very difficult to make any suggestion, but its frequent association with syphilis leads Fournier to regard it as a parasymphilide on the supposition that the syphilis has disturbed the patient's nervous system, and the recurrent herpes is one of the results.

The treatment is unsatisfactory. Butlin⁸⁷ recommends the avoidance of stimulants and careful cleansing of the mouth, and this no doubt is sufficient for the lighter cases. For the recurrent forms the question is more difficult; Hutchinson recommends arsenic, but Butlin does not support him. Fournier recommends the cauterization of the lesions, but Butlin's opposition to the use of such agents in the mouth and on the tongues of syphilitics is well known. He finds that the most useful plan of treatment is on antiseptic lines. The medicament is applied in the form of an ointment containing boracic acid and cocaine, to act as a local anaesthetic, or in the form of a lotion containing carbolic acid, tincture of myrrh, and eau-de-cologne, to be used with a soft rag.

The dyspeptic ulcer is more easily differentiated from a syphilide than is the preceding affection. Four points should

be attended to in making the diagnosis. Firstly, in shape it is exactly circular; secondly, it is cup-shaped, being deeper in the centre than at the periphery, while syphilides are flat; thirdly, it is of a yellow colour, whereas syphilides are red or greyish; fourthly, it is conspicuously painful.

The lesions of dermatitis herpetiformis, when they occur within the buccal cavity, are sources of great confusion in the diagnosis of mucous syphilides; they may take forms absolutely indistinguishable to the eye from a mucous patch, and they affect principally the lining of the lips and the dorsum of the tongue, parts which are, too, favourite seats for the development of the mucous patch. If, of course, as is most commonly the case, the buccal lesions occur simultaneously with an eruption on the skin, the correct diagnosis is not so difficult; but if, as less often happens, the skin is unaffected, diagnosis may be impossible. Help may occasionally be obtained from the presence of a collarette of epithelial debris around the lesion, or from a glimpse of a new vesicle before it has had time to be broken, but no reliance must be placed upon the presence or absence of these features. In such cases there is nothing for it but to search for the spirochaete with the microscope, and wait for further clinical developments. Fournier describes how even he on one occasion barely escaped being deceived in the case of a young lady of blameless character, who, owing to the presence of certain lesions in the mouth, was suspected of syphilis. The discovery of a few vesicles on the wrist alone saved him.

Glossitis exfoliativa marginata or 'wandering rash', although bearing a considerable resemblance to a syphilide, has three characters which enable a differentiation to be made without much difficulty. Firstly, by its fine, definite, regularly curved

border, which stands out almost in relief white. Secondly, by the curious property that it possesses of changing its position on the tongue (whence indeed its name). Thirdly, in that it is quite unaffected by treatment upon antisiphilitic lines. This affection is not particularly well known, but a very good plate illustrating it is to be found in Butlin's work on diseases of the tongue.

Sometimes mercurial stomatitis gives rise to appearances not unlike syphilides. It is important to be able to recognize them because, if not correctly accounted for, they are liable to be treated with mercury, and so aggravated. Sometimes erosions are found behind the last molars or on the mucous lining of the cheeks. These erosions are red, irregular, inflamed, and of indefinite outline. At other times diphtheroid patches, clothed with an adherent pellicle, are found on the inner aspect of the cheeks. These eruptions are always accompanied by other signs of mercurial stomatitis, which of course simplifies the diagnosis.

Finally, we have only to mention dental and tuberculous ulcers, primary chancres, and, rarest of all, soft sores; but these conditions are hardly likely to lead to any serious difficulty in differentiation between them and mucous syphilides.

2. MUCOUS SYPHILIDES OF THE GENITAL ORGANS

In the male. The lesions here arrange themselves into the usual four main types as described above. The erosive is by far the commonest, and is found particularly frequently in the groove between the glans and the prepuce. Similar lesions may also be found upon the mucous lining of the prepuce and upon the surface of the glans itself. In the last-named situa-

tion they are often modified so as to form fissures following the axis of the organ. In diagnosing these mucous syphilides, as in the case of those found in the mouth, the chief difficulty is to distinguish them from herpes. Exactly the same points must be attended to as were mentioned above in discussing the diagnosis of buccal syphilides, and we will refrain therefore from recapitulating them. The papulo-erosive and the papulo-hypertrophic forms are rare in the male genitals, particularly the latter. Mr. Ernest Lane⁸⁸ had, however, a patient at the Lock Hospital who showed so abundant a growth of fungating condylomata, that his penis and scrotum were entirely covered by them. Nothing was to be seen of his external genitals but a huge moist tuberculated mass, which extended on to the front of his abdomen. In its midst was concealed his urinary meatus; there was, however, no obstruction to the passage of urine, but the stream ascended vertically into the air. The chief practical importance of mucous syphilides on the male genitals lies in their infectivity. However slight the lesion may be it is highly infectious, owing to the fluid secreted by it.

On the scrotum the lesions found are, as a rule, midway between dry and moist, between skin rashes and mucous rashes. Only two points need be especially emphasized: firstly, that they show a marked tendency to a circinate arrangement, and, secondly, that they are very liable to become crusted and eczematous. If neglected, great oedema and swelling may take place, rendering the aspect of the scrotum almost like that in true elephantiasis.

In the female. The mucous syphilides occurring in the genital regions of the female are divided by Fournier into (1) of the vulva, (2) of the vagina, (3) of the uterus.

In the vulva they are met with in all parts, especially on

the inner aspect of the labia majora. In many cases, too, cutaneous macules and papules occurring in the regions bordering on the vulva become moist or mucous syphilides owing to the warmth and moisture of the parts. All the four primary types of mucous lesion are found in these situations, and sometimes all four in a single patient, but the commonest are the papulo-erosive. This form corresponds to that usually described by writers in this country as mucous tubercles. The lesions are usually round or oval, and vary in size from that of a lentil to that of a sixpenny piece. Among women who are deficient in their attention to personal cleanliness, they may be found collected into a large infiltrated patch, to which Fournier has given the name 'nappe muqueuse'.

The papulo-hypertrophic form is less common than the preceding, and, as was mentioned at the beginning of this chapter, is only to be found among women who have no regard for personal cleanliness. The term 'condyloma' should be restricted to these forms. They may reach an enormous size and secrete an extremely offensive fluid. Sometimes they may be seen forming a complete circle round the vulval opening. They are dead white in colour, and irregular in contour and surface; the popular simile, likening them to a cauliflower, gives a very fair idea of their appearance.

The ulcerative mucous syphilide of the genital organs is inclined to make its appearance somewhat later than the preceding forms. It is found upon all parts of the vulva, but most often on the inner surface of the labia majora. The lesions may be multiple or, less often, single. Their characters are very indefinite and varied; in fact, it is difficult to say more of them than that they are ulcers. This of course makes their diagnosis less easy than it otherwise would be. They are more

resistant to treatment than the other varieties of mucous syphilide, but seldom give rise to serious trouble.

The diagnosis of mucous syphilides of the female genital organs is, apart from other signs of the disease, not always very simple. The distinction has to be made from much the same conditions as have been mentioned in considering the mucous syphilides of other parts. The erosive form has to be diagnosed from herpes, and the usual points of difference must be attended to. The mucous tubercle and condyloma can hardly be mistaken for any other lesion, although it might be possible to confuse condylomata with gonorrhoeal warts. The ulcerative syphilides have to be distinguished from soft sores, and this is a problem which is at once practical and difficult. Several points should be attended to. Firstly, a soft sore always appears within a few days of exposure to infection. If therefore it is certain that there has been no exposure for a considerable time, a soft sore is excluded. In soft sores a bubo is a common complication, but a very exceptional occurrence in connexion with a mucous syphilide. Regular configuration, in the form of an arc or segment of a circle, although not common, when it does occur, is pathognomonic of a syphilide. Again, soft sores are frequently multiple, and although mucous syphilides may be multiple also, they seldom exhibit so many lesions as the soft sore; moreover, owing to the auto-inoculability of the soft sore, the lesions are found in varying stages of development. Finally, in the pus from the soft sore can be found the bacillus of Ducrey, and in the fluid from the mucous syphilide, the spirochaete. As ever, the clinical pathologist is the final referee.

Compared with the syphilides of the vulva, the syphilides of the vagina and the neck of the uterus are very rare. For some

unknown reason the spread of lesions upon the mucous surface seems to be barred by the vaginal orifice. Examination with a speculum shows that in less than ten per cent. of cases suffering from mucous syphilides of the vulva are there present any similar lesions on the vaginal wall or on the neck of the uterus (Fournier). On the uterus they are commoner than in the vagina. When they do occur in the vagina they are found either at the vulvo-vaginal ring or on the roof, scarcely ever in the intervening regions. As to the form under which they appear in the former situation, they are either erosive or ulcerative; in the latter they are always papular. On the intra-vaginal portion of the uterus, mucous syphilides may take either the erosive, the papular, or the ulcerative type. The papules are not difficult to recognize, but the erosions have no character to distinguish them from simple erosions, unless they happen to be arranged in a symmetrical fashion round the os uteri, or to exhibit the circinate shape so typical of syphilis. Syphilitic ulceration of the neck of the uterus also is difficult to diagnose; we would only call attention to the fact that ulcers in this position unaccompanied by symptoms are always suspicious, and that those of syphilitic nature are particularly amenable to treatment.

MUCOUS SYPHILIDES OF THE ANUS AND ITS NEIGHBOURHOOD

At the anus itself, according to Fournier, who is our great authority upon all matters relating to mucous syphilides, the erosive type is the only one found. Most frequently it has to be sought for by unfolding the mucous membrane, for it assumes the character of a fissure, with this peculiarity, that it is not nearly so painful as a fissure of the ordinary variety, and, like all mucous syphilides, is easily cured by simple treatment. In

the neighbourhood of the anus, on the other hand, is the site *par excellence* for mucous syphilides of every variety, and it is here that are found the papulo-hypertrophic forms or true condylomata in their greatest luxuriance. There are also lesions which accentuate the natural folds and fissures of the parts, and which can only be found by stretching the surface. In these cases the folds of the anus are transformed into thick pads, separated from one another by ulcerated furrows. This condition may possibly give rise to some trouble in diagnosis on account of its resemblance to the state of things produced by long-standing pruritus ani, which has caused much irritation and scratching. Otherwise it is not likely that any confusion will arise in diagnosing syphilitic lesions near the anus.

LATER SYPHILIDES OF THE MUCOUS MEMBRANES

The conditions described in the foregoing pages are all associated with the early stages of syphilis, but the mucous membranes are by no means exempt from attack in the tertiary period. They are liable to gummatous infiltration and induration, which, perhaps even to a greater extent than the corresponding lesions in the skin, is likely to soften and ulcerate. The ulcers so produced may reach an alarming size, and occasionally assume a phagedaenic character. In addition to these affections the mucous membranes are prone, in syphilis, to undergo changes of a peculiar nature, to which the name leukoplakia has been applied. In leukoplakia the normal supple, pink-coloured epithelium of the mucous surface is changed into a hard, dead-white plaque, at the margin of which, or even in its centre, may develop cracks and fissures. Unlike the ordinary mucous syphilides of the secondary stage,

this state of things usually gives rise to considerable pain and discomfiture. All mucous surfaces, whether of the buccal cavity or in the neighbourhood of the genital organs, are liable to be the seat of leukoplakia, but it more often affects the mouth, and in the mouth more often the tongue, than other parts.

It is a condition of the very greatest importance, because malignant disease is extremely likely to become engrafted upon it. Such a complication is the more liable to occur if any form of chronic irritation is allowed to play upon the patch. Even apart from the incidence of so unfortunate a development, leukoplakia, if once well established, is extremely intractable to treatment of a medical nature, and the modern tendency is to submit to surgery these cases, without waiting for a more serious condition to appear.

In discussing the early mucous syphilides, we have been able to trace an analogy between the various forms and the various forms of cutaneous syphilides, and it is possible also to do this in reference to leukoplakia. Leukoplakia corresponds in the mucous membranes to the hyperkeratosis of the palmar and plantar skin. The thickened plaque of sodden changed epithelium is the mucous equivalent of the thickened, horny, and desquamating covering of the palms or soles. Both conditions occur late in the disease, both are rebellious to treatment, and both are liable to be succeeded by malignant neoplasm. We must, however, qualify the last two statements by the addition that these qualities are much more marked in the case of the mucous syphilides than of hyperkeratosis of the skin. We may, however, in this connexion draw attention to the case depicted in Plate XX, where the hyperkeratotic condition on the heel has been succeeded by the development of

an epithelioma. Another point of correspondence between leukoplakia and hyperkeratosis, is that although both are so often associated with syphilis, yet they may also arise independently of that disease, for hyperkeratosis is often found in connexion with chronic inflammatory conditions of the palms and soles, and leukoplakia is liable to be caused by any form of chronic irritation of the mouth. Butlin indeed mentions some cases in which he is inclined to ascribe it to gout. We do not propose here to discuss the leukoplakia of the mouth and tongue as they occur in syphilis, because the condition has already been adequately dealt with by Mr. D'Arcy Power in the second volume of this work, but the similar condition as it occurs in other situations does merit some attention.

On the penis leukoplakia is seen in the form of a circumscribed ropelike infiltration of the skin, and white thickening of the mucous membrane. Histologically it is characterized by a chronic inflammation, principally localised in the sub-epithelial portion of the mucous membrane, which leads secondarily to a hypertrophy of the epithelium, whence appear marked hyper- and parakeratosis. Finally, the affected parts atrophy.

It leads to narrowing of the foreskin, difficulty of withdrawal and consequent pain in coitus, and, apart from that, it is often accompanied by severe soreness and itching.

In all the structural points the leukoplakia penis is comparable with the leukoplakia buccalis, but as regards frequency of incidence it is far rarer than the buccal form.

There are, in addition, two other points of resemblance between leukoplakia penis and buccalis: firstly, that in either situation it is frequently associated with syphilis, although there seems to be no doubt but that it may arise quite in-

dependently of that disease ; and, secondly, in that it is liable to be the seat of carcinomatous degeneration. Pflanz⁸⁹ has published two cases of leukoplakia penis, in which this accident was actually observed to occur.

The corresponding condition in the female is that known as kraurosis vulvae, and the nature of this disease is exactly similar to leukoplakia penis. White patches are formed upon the mucous membrane, accompanied by signs and symptoms of inflammation, and these patches extend ultimately right round the vulvo-vaginal ring, greatly contracting the opening of the vagina. Here, too, cancer may follow, and we would call attention to an article by Butlin on this subject. Having regard to the possibility of the development of cancer in these cases, and to their intractability by any method of medical treatment, no delay should be allowed in instituting surgical measures.

Finally, let us ask once more, what is the connexion between leukoplakia and syphilis ? The frequency with which it is found after syphilis, suggests that the two diseases are associated in some way, while the fact that leukoplakia can undoubtedly occur in the absence of syphilitic antecedents, shows that they are not the only cause. It seems most reasonable to regard leukoplakia as caused by a chronic irritant in a predisposed subject. That irritant may be tobacco in the mouth or a balanitis in another situation. Syphilis should be looked upon as a predisposing factor only. As we have already seen in the case of the mouth, gout, too, may act in the same way.

In the matter of the affections of the mucous membranes more exclusively associated with syphilis than is leukoplakia, the most interesting are the different forms of glossitis and gummata of the tongue, which, however, have been discussed already by Mr. D'Arcy Power in Volume II, and proceeding in

the direction of the fauces and beyond we encroach upon the region dealt with by Dr. St.-Clair Thomson. Nothing, therefore, now remains but to consider the mucous syphilides of the male and female genital organs.

The penis is not uncommonly attacked in the tertiary stage, both on its cutaneous and mucous portions. But often what is really a tertiary syphilide has been mistaken for a soft sore or a fresh infection with syphilis, that is to say, for a hard chancre. This latter view is particularly likely to be taken, because gummata of the penis most often occur, late in the course of the disease. According to a table given by Fournier they are most often seen from the fourth to the tenth year, and they may be so late as the forty-fifth. Their most usual situation is at the glando-preputial fold, and if not there, at the urinary meatus. They may take the form of nodules or of discs, or there may be a diffuse infiltration. In all three forms, but more especially in the first two, a very conspicuous feature is the extreme hardness to the touch of the infiltrated mass. Ulceration is common, and it may be quite superficial and limited in extent, or it may be widely spread and so deep as to cause a urethral fistula. It is a curious fact that such fistulae usually heal easily under the influence of treatment, a point in which they differ from fistulae caused by external operations on the penile urethra, undertaken for the relief of strictures. When the ulceration involves the meatus, a stricture is almost sure to be caused by the cicatricial contraction which takes place when healing is effected.

An interesting point with regard to the localisation of penile gummata is the frequency with which the site of the original chancre is attacked. Sometimes it is the patient who calls the attention of the physician to this fact, but usually under

the impression that he has a second chancre, and it is important to be able to differentiate between a primary and tertiary lesion on the penis. Several points must be noted, by the aid of which the correct diagnosis may be made. Firstly, a gumma may arise apparently spontaneously, that is to say, after years have elapsed, without the possibility of contagion ; a primary chancre can only arise within a comparatively short time after exposure. A primary chancre is always accompanied by enlargement of glands, a gumma is not. In the case of a chancre defect of the epithelium occurs at the outset, in the case of a gumma the initial symptom is induration, which only occurs secondarily in the course of a chancre. Lastly, a chancre is always followed by the development of secondary symptoms. Nothing of the sort of course happens in the case of a tertiary manifestation.

Tertiary syphilides are not uncommon in the female genital regions, and they are found far more often about the vulva than in the vagina, following in this circumstance the precedent set by the secondary mucous syphilides. In the vulva they occur either in the form of superficial ulcerations or as gummata arising more deeply. These do not differ materially from similar lesions in other parts ; it may be noted perhaps, incidentally, that the tertiary ulcerations of the vulva are more refractory to treatment than those of the secondary stage. Fournier also describes a condition which he calls a diffuse hypertrophic syphiloma of the vulva. This consists in a massive infiltration of one or more parts of the vulva, and which may become generalized over the whole of its extent. This infiltration is of a stony hardness, and may alter entirely the conformation of the parts so as to make the original structure absolutely unrecognizable.

Gummata of the vulva are not very often seen ; as a rule they are of small size, but sometimes a single gumma will reach large proportions, and present itself as a tumour of stony hardness. Such tumours may reach a large size before ulceration begins, but when it has once started, it proceeds with startling rapidity, giving rise to a typical gummatous ulcer of great dimensions. Tertiary syphilis in the vagina is extremely rare, and is almost always seen in the ulcerative stage ; of gummata in this situation only a few cases have been published.

The chief complication of syphilides of the genital organs, whether in the male or female, is the occurrence of phagedaena. This, fortunately, is by no means common, but when it does occur is very serious. Two varieties are described, one in which the ulceration tends to spread chiefly in extent, and the other in which it tends rather to penetrate deeply.

CHAPTER IX

CONGENITAL SYPHILIDES

As in acquired syphilis so in the inherited form of the disease skin lesions form an important part of the clinical picture. If a foetus has been infected with syphilis *in utero*, either at the time of the impregnation of the ovum or at a later date, in the vast majority of cases manifestations on the skin will sooner or later appear, if the infant lives. It seems possible if not probable that in some cases there is no skin eruption, although subsequent constitutional changes which develop long after birth may be undoubtedly due to syphilis. Such a sequence of events would be parallel with that seen so often in women, and to which allusion has been made above, that tertiary ulcers are often the first visible sign of syphilis apart from the occurrence of miscarriages.

As a rule, however, syphilis shows itself upon the skin within the first six months of life. An eruption may be present at birth or it may not appear until many weeks afterwards, but the most usual time of onset is from the second to the sixth week of extra-uterine life. In type the eruptions of the hereditary do not differ essentially from those of the acquired form, but there are certain well-marked characters to be described. In exceptional cases syphilitic infants are born with a bullous eruption, the so-called syphilitic 'pemphigus', and these children nearly always die. The bullae are found upon the hands and feet and commonly involve the palms, soles, and nails (Plate XXX).

The bullae are at first small, but soon enlarge, become purulent and rupture, forming excoriated ulcerating patches, more or less covered with greenish yellow scales and crusts. There is often a dark reddish areola round the syphilitic bulla. The nails are often implicated by the inflammation, which extends around and into the bed and raises them up. Sometimes the base of the nail becomes curiously narrowed, and its whole structure may become blackened, necrosed, and shed.

By far the most common type of eruption is that which appears in the form of disc-like patches of coppery red tint (Plate XXIX). These patches may be erythematous and leave only a brownish stain on pressure; or there may be some degree of cell-infiltration, so that a maculo-papule results, or the macule may become scaly. It is characteristic of these disc-like lesions that they

tend to be uniform in size and to attack all parts, flexure and prominences alike. They are generally most abundant over the buttocks, thighs, perinaeum, genitals, and lower abdomen, less abundant upon the trunk, and more marked again upon the palms and soles and about the nose and mouth. It will be seen, therefore, that they differ in distribution from that of the secondary rashes of acquired syphilis. Fig. 1 shows these points very clearly. (It is redrawn by kind permission from Dr. Adamson's book on 'Skin Affections in Childhood' ⁹⁰.)

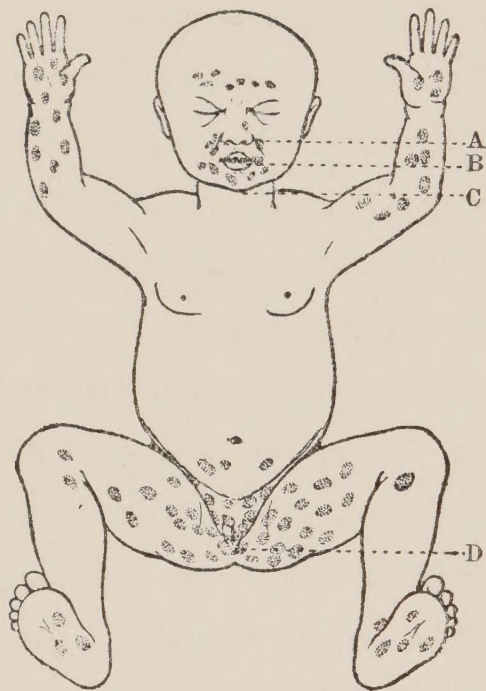


FIG. 1. Papular Syphilitic Rash.

A. Snuffles. B. Fissured lips.
C. Hoarse cry. D. Mucous tubercles.

Those lesions which occur about the anus, or in moist flexures, or at the angles of the mouth, often become excoriated and sodden, producing mucous patches or shallow ulcers. On the thighs and buttocks and around the mouth the disc-like lesions may often run together into large unbroken areas ; but always at the margin and on other parts there are to be found isolated macules or papulo-macules. The skin eruptions are usually accompanied by other signs of the disease, such as snuffles, hoarse cry, and fissured lips. The child is unhealthy looking, it has a pinched and wrinkled expression of countenance, and the skin generally is muddy in appearance and atrophic. The hair is often affected in syphilitic infants. It is particularly liable to fall off from the sides and back of the scalp, but it may affect not only the whole of the scalp but the eyebrows as well. On the other hand, an unusually abundant crown of dark hair at birth is also well known to occur in congenital syphilitics : it is familiarly called the ' syphilitic mop or wig '. This profusion of hair is often subsequently followed by alopecia.

The lesions which are associated with syphilis in its later stages in the adult are not so often found in the congenitally syphilitic. Nodular and gummatous eruptions are distinctly rare, at all events early in life, but they may be sparsely developed in subjects who have had congenital syphilis a few years previously. A good example of a severe type of ulceration of the anus in an infant is depicted in Plate LVII of the first volume. Probably these affections of the mucous surfaces are the commonest of the later skin manifestations of congenital syphilis, and they are sometimes obstinate to treatment. Gummatous ulceration is known to occur, but it is distinctly rare. Sequeira⁹¹ has recently published a case in which there was extensive destruction of the face due to congenital syphilis,

and in which there might have been some difficulty in differentiating the condition from lupus. Subcutaneous gummata in an infant at birth have been described by Virchow, and similar cases in very young children have been recorded by other observers. At the period when the well-known signs of hereditary syphilis are to be observed—the Hutchinsonian teeth, the sunken nose, the radiating scars at the angles of the mouth, and interstitial keratitis—no skin lesions are present.

The diagnosis of congenital syphilis is always interesting and important. It may be very difficult. The rare bullous syphilide or 'syphilitic pemphigus' must be distinguished from pemphigus neonatorum which is due to local microbic infection. In making a diagnosis the main points in favour of the syphilitic eruption are the brownish coloration of the eruption—reddish brown plaques or flat papules are often seen associated with the bullae; the occurrence of the lesions on the palms and soles; that there is no improvement under antiparasitic treatment (non-mercurial); the wasted condition of the infant.

Suggestive of pemphigus neonatorum are: the well-nourished condition of the baby: the appearance of the eruption, not at birth, but some few days afterwards; the non-implication of the palms and soles, and evidence of contagion—impetigo or whitlow in parent or nurse. True pemphigus also occasionally occurs in infants, but it only can be distinguished clinically from the common so-called pemphigus neonatorum by the course of the disease, although it is said that the fluid in the vesicles always contains an excess of eosinophile corpuscles.

In diagnosing the more usual type of congenital syphilide, it may be that we have to make up our minds on inspection

of the rash alone, but generally there are other symptoms to assist us, or there may be evidence of the disease in the parents. As the father is seldom seen this evidence most usually takes the form of a history of abortions, miscarriages, or the bearing of dead children by the mother. In the child the most helpful corroborative signs are nasal catarrh and hoarseness of cry, and also fissures of the lips. Rarely there may be evidence of syphilitic disease of the viscera, such as epiphysis or enlargement of the testicles. One of us (H. D.) had a case in which the diagnosis of a fading rash on the forehead was confirmed by the co-existence of hydrocephalus. The spleen and liver, too, may be increased in size, but it must be remembered that an enlargement of either organ may be due to other causes. There is a very common tendency to label all eruptions about the buttocks and genitals of a baby as syphilitic and all ulcerative lesions in infants are liable to share in the same condemnation. This is a serious thing because mercurial treatment is unnecessarily instituted to the detriment of the child's general health. As a matter of fact syphilitic eruptions form only a small minority among infantile skin eruptions and they have fairly definite characters. The following points should be attended to. Firstly, the age of the patient : the eruptions of congenital syphilis commonly make their appearance between the ages of three weeks and three months, and those which are not seen till six months or later are probably not syphilitic. Next, the distribution of the lesions. The distribution of the syphilitic eruption is commonly about the genitals and buttocks, around the mouth, and on the palms and soles. Lastly, the form and colour of the lesions. They are, as a rule, comparatively small (from a quarter of an inch to half an inch in diameter) and have sharply circumscribed margins ; the larger areas sometimes seen are

formed exclusively by coalescence. Their colour tends always to the characteristic reddish brown or coppery hue of syphilis, while other inflammatory eruptions show a much brighter red. The affections most likely to be mistaken for syphilitic eruptions are the simple erythemata about the buttocks, impetiginous eruptions, and seborrhoeic eczema in the napkin region ; while the ulcerative lesions of the somewhat rare vacciniform dermatitis are not always easily distinguished from those of hereditary syphilis.

Simple erythemata occur about the convex surfaces of the buttocks, of the inner and posterior parts of the thighs and the genitals, and often upon the calves and heels or shoulders and elbows, in fact, anywhere where the skin is exposed to friction from clothes which are allowed to become damp and dirty. They are seen either as uniformly dusky red areas, or on the buttocks, thighs, and scrotum as circular or oval flat papules, which becoming excoriated form shallow ulcers. These eruptions are most marked upon parts which are points of pressure, that is upon the back of the buttocks and thighs and upon the scrotum, where it is rubbed by the napkin. Other signs of syphilis are absent, and lesions do not occur upon the face nor upon the palms and soles ; furthermore they avoid the flexures, for the juxtaposition of the fleshy surfaces protects them from friction with the napkin. Figure 2 shows very well the typical distribution. The colour is bright red, not coppery, and the intensity varies from day to day. With the papulo-ulcerative forms the diagnosis may, however, be difficult, and often it can only be made as the result of treatment or with the help of the pathologist. This form of eruption has only been definitely separated from the syphilides within recent years, first by the work of Jacquet in France, and subse-

quently by Adamson ⁹² in this country, from whose description indeed this account is largely drawn.

Impetigo about the napkin region affects particularly the flexures (in this particular it contrasts with the simple erythema), but often a larger area corresponding to the whole of the area covered by the napkin, namely the lower abdomen, the buttocks, and upper parts of the thighs. The area is bright red and shiny, excoriated and moist in parts, particularly in



FIG. 2. Napkin Erythema.



FIG. 3. Napkin Impetigo.

the flexures. The margins of this area are phlyctenular; that is to say, the epidermis is here raised and has beneath it a certain amount of turbid serum. Beyond the margins are smaller areas, excoriated, phlyctenular or crusted; on other parts are other lesions of an impetiginous type—phlyctenular around the nail, raw surfaces behind the ear, or typical crusted impetigo lesions. Often another child in the family has impetigo contagiosa. Fig. 3 will give a very clear idea of the distribution.

Seborrhoeic Dermatitis, probably also of microbic origin,

although the bacteriology of it as yet has not been determined accurately, likewise favours the flexures and napkin region of the infant. In distribution it is like impetigo, but instead of glazed or raw areas, it forms circumscribed red patches with sharp margins, more or less moist, but covered with greasy looking yellowish scales. As in the case of impetigo the eruption may occupy only the flexures or the whole napkin region in one large sheet, while there may be similar areas in the axillae, or on the side of the neck. There may, too, be circumscribed patches upon the cheeks, and around the mouth and nose, and the mother is almost invariably the subject of well-marked 'seborrhoea capitis'. Fig. 3 shows the distribution of this eruption also; it is practically identical with that of impetigo.

Vacciniiform Dermatitis. In this rather rare affection there may be from three or four to a dozen or more sharply margined circular excoriations or shallow ulcers, of from a quarter of an inch to half an inch in diameter, situated about the genitals or perineum. The lesions begin as vesicles, and generally one or more of such early lesions are present, and there are no coppery-coloured macules or papules.

Finally, it is just possible that the very rare eruption *granuloma annulare* might be mistaken for a syphilide. This consists of a number of raised rings made up of separate nodules which grow together and ultimately coalesce, leaving a central area of normal skin. They occur on the buttocks and calves of infants in scanty numbers. In a case published by one of the writers (H. D.)⁹³ there were about a dozen rings, and they appeared to radiate out from the anus as a central point. They usually appear at a later date than the congenital syphilides; the earliest on record was in an infant of sixteen months. They are not coppery in colour.

As regards the general questions of prognosis and treatment, we would only say that the immediate prognosis is good, except where the infant is seriously wasted and marasmic. A few cases which have recovered from the initial skin eruptions return subsequently with buccal or anal ulceration, but not often. The ultimate results and disabilities of hereditary syphilis come more often under the observation of the general physician than under that of the dermatologist, and for full information on these points we would refer the reader to Dr. Still's article in the first volume of the present work.

CHAPTER X

THE TREATMENT OF CUTANEOUS SYPHILIS

THE treatment of syphilitic affections of the skin cannot be separated from the treatment of syphilis in general ; in fact, to a very large extent, the treatment of syphilis in its early stages resolves itself into the treatment of the skin and mucous lesions of syphilis, and it is by the speed with which these signs disappear that we judge the degree of success attained by the remedies which have been employed. The whole question of the general treatment of syphilis has been already amply discussed in previous volumes, and we do not here propose to reopen that vast subject afresh—to discuss the relative advantages of the oral, the intramuscular, or the inunction methods of administering mercury, or to enumerate the ingenious names given by imaginative chemists to atoxyl and other arsenical compounds (for the most part derivatives of that substance) with which physicians who are willing to risk the supervention of optic atrophy are tempted to dose their patients. Most recently of all, a drug synthesized by Ehrlich has appeared of the name dichlor-hydrate-dioxy-diamido-arsenobenzol, one injection of which is said to work a wonderful change in syphilitic lesions at any stage of the disease, and to reduce a positive serum reaction to a negative. From the preliminary accounts published it is evident that it deserves serious attention (Wechselmann).⁹⁴

However, still from out of the furnace of controversy the general principles emerge unscathed that mercury and the

iodides remain the most potent remedies at our disposal, in whatever form it may please our fancy to administer them, and that in the majority of cases the results are satisfactory. The main thing in all cases is to avoid excess and to keep just short of the production of salivation or severe stomatitis. It is, indeed, probable that in the days of old many syphilitic patients were overdosed with mercury, and that owing to the ruination of their constitutions in this way, the effects of the disease were far more disastrous than they otherwise would have been. Certainly, at the present time the terrible results so often depicted by the older syphilographers are but seldom seen.

In this chapter we propose rather to treat of the methods of modifying lesions occurring on the skin and mucous membranes by medicaments applied externally. Such remedies are those which are administered in the form of baths, lotions, ointments, powders, plasters, and various cauterizing reagents.

1. *Baths.* There are two varieties of baths which may be useful in the treatment of syphilis. We may administer mercury directly in the form of a bath, and under such measures an extensive generalized eruption, whether it be erythematous, papular, or pustular, will often show marked improvement ; or we may employ warm baths which usually contain sulphur, as in the well-known system in vogue at Aix-la-Chapelle, at the same time as mercury is being introduced into the body by other means. It is believed that in this way the elimination of mercury is promoted, and that a greater quantity can be passed through the tissues in a given time without producing toxic effects. Interesting experimental work on this point has been done by an Italian observer, who finds that part of the mercury is changed into the sulphide, a comparatively innocuous form. Whatever the real reason may be, there can be no doubt that

this treatment—combined with the frequent antiseptic oral ablutions insisted upon by every practitioner at Aix—is most efficacious, even in some cases which have elsewhere resisted other methods of therapeutics.

Mercurial baths are rather a dangerous method of administering the drug. As the whole skin of the body is exposed to its action, we have to deal with a very large absorbing surface, and profuse salivation and other toxic symptoms may easily be caused. The usual form which a mercurial bath takes is a warm bath containing a small quantity of a soluble mercurial salt, from 1 to 3 drachms in 30 gallons. In cases where there is much pustulation and incrustation, whereby baths are indicated, it is better to rely upon baths containing some comparatively innocuous disinfectant, such as creolin or sanitas, while administering mercury by other channels. Local mercurial baths made up with the perchloride in quantity of about 5 to 10 grains to the quart are sometimes very efficacious in dealing with the obstinate squamous syphilide of the hands or feet.

Mercurial vapour baths are also sometimes given. In these the patient sits in a closed chamber with the head alone projecting, while a small quantity of calomel is volatilized within. This is an unsatisfactory way of administering the drug, because accurate dosage is impossible, and results are consequently very unequal.

In cases of phagedaena the continuous-bath treatment first recommended by Sir Jonathan Hutchinson is well known. In these cases the patient is kept immersed in a warm bath for a period of forty-eight hours or more. The bath should contain nothing more than a little boracic acid.

2. *Lotions.* These, of course, are comparable in their action

with baths, but are far less intense in every way. Being applied only to a limited area at any one time the risk of toxic absorption is reduced almost to negligibility. It is still important to restrict their strength to such an extent that the tissues are not locally destroyed. Most lotions employed are of an antiseptic nature, but it is highly probable that to a large degree their virtue lies in that by their use the part is thoroughly cleansed of accumulated discharges and other forms of filth, and so the underlying granulations get a chance to grow. From these remarks it must not be inferred that we are of opinion that antiseptics are of no value, for this is far from being the case, but we would utter a word of warning against the use of solutions which are too concentrated. Actual experiment has shown that any antiseptic which is of sufficient strength to destroy organisms when suspended in an albuminous fluid, as they invariably are, is also strong enough to cause necrosis of the tissues with which it comes in contact. The most useful solutions are those of the sublimate or biniodide of mercury, which may be employed in a dilution of from 1 in 1,000 to 1 in 8,000. In most instances the 1 in 1,000 is too powerful; a good average strength is 1 in 4,000; if it is to be used for the face, 1 in 6,000 or 1 in 8,000 is better. The well-known 'black wash', or *Lotio nigra* of the British Pharmacopoeia, which consists of 30 grains of calomel to 10 ounces of lime-water with some mucilage of tragacanth, is a favourite application for the primary sore, and it is also to be recommended for the ulcerative lesions of later stages. It acts not only as an antiseptic but as a stimulant, and is therefore particularly useful when ulcers are indolent in nature and disinclined to heal. The strength of this application is about 1 in 150, but as calomel is an almost insoluble substance it does not act with by any means the same power as one of the soluble

mercurial salts. It is hardly necessary to point out that a solution of corrosive sublimate of that strength would act as a cauterizing agent.

In treating the late ulcers, weak carbolic lotions (1 in 80 or 100) are useful, and so are the various tar derivatives, such as creolin or lysol, which may be employed at a strength of about half a drachm to the pint. For cleansing a really foul ulcer there is nothing better than hydrogen peroxide, which may be prescribed as a solution of five or ten volumes, which means that a given volume of the solution is capable of discharging five or ten times its volume of nascent oxygen at atmospheric pressure.

Closely allied with the lotions as used for tertiary ulcerations are the fomentations, which are often of great help in cleaning up foul wounds. Those most commonly used are made with liniment impregnated with boracic acid; a very excellent variety of these is provided by the boroglycerinum of the Pharmaceutical Codex, which contains 47 per cent. of boracic acid in glycerine. Originally a patent preparation, its only disadvantage is that it is somewhat expensive for hospital use. In the final stages of an ulcer, when stimulation is all that is required, the old *Lotio rubra*, which owes its properties to the presence of a small quantity of zinc sulphate, is as good a lotion as can be desired. The strength given in the British Pharmacopoeia used to be 5 grains to the ounce, but 2 grains to the ounce is quite enough.

3. *Ointments*. In discussing the use of ointments we do not intend to go into the question of the method of introducing mercury into the system by means of inunctions. That is really a part of the general treatment of the disease, and as such has already been treated adequately in a previous volume. Here

it is only desired to call attention to the local employment of greasy applications.

Both mercurial ointments and applications containing iodine may be used, and their action on superficial lesions is distinct and rapid. It cannot be said that their use is necessary in most cases of early syphilis, for the lesions will disappear under general treatment, but when eruptions occur upon uncovered parts, such as the face and hands, it is very desirable for the mental comfort of the patient that they should be removed as quickly as possible. The usual preparations to be used for this purpose are the ammoniated mercury ointment of a strength varying from 15 to 30 grains to the ounce, or for this may be substituted a weak nitrate of mercury (10 grains to the ounce), or yellow oxide of mercury (10–15 grains to the ounce), or a calomel ointment (10–20 grains to the ounce). If, as sometimes happens, the skin is particularly sensitive to mercury, the strength of the preparation must be reduced, and it is advisable to make it up with an equal quantity of zinc ointment. Mercurial ointment must not be employed haphazard over large surfaces, more especially if other forms of mercury are being administered simultaneously by other channels, for excessive absorption may take place, and symptoms of mercurial intoxication must therefore be carefully sought for.

Later in the course of the disease, ointments are useful in the treatment of the scaly and hyperkeratotic syphilides of the palm and sole, but before applying the ointment it is advisable to remove as much as possible of the horny and hypertrophied epidermis, either by scraping or by the cautious painting on of liquor potassae, or by the use of an alkaline soap, or by the application of a strong salicylic acid plaster or ointment (20 to 40 per cent.). Or the salicylic acid may be combined with the

mercurial ointment. A useful formula is: oleate of mercury 10 to 20 per cent., salicylic acid 5 to 10 per cent., vaseline ad 100 per cent. Sometimes it is found better to use resorcin (5 to 10 per cent.) instead of the salicylic acid.

Similar ointments are also beneficial in treating the nodular, pustular, and gummatous lesions, but it is often found that sluggish ulcers and broken-down gummata do better with an iodoform ointment or with an ointment like the 'red ointment' of the Blackfriars Skin Hospital, which contains both the red oxide and red sulphide of mercury (of each 4 to 8 grains to the ounce), with 2 minims of creosote. This ointment appears often to act as a stimulant to an obstinate ulcer, and to assist in its cure by granulation.

4. *Powders.* The basis of all powders used in the treatment of syphilis is calomel. It may be used undiluted, but as a rule it is employed combined with oxide of zinc, carbonate or oleate of zinc and starch. A good formula is—

Calomel, 2 parts,
Zinc oxide, 2 parts,
Powdered starch, 4 parts ;

or,

Calomel, 1 part,
Iodoform, 2 parts,
Zinc oxide, 3 parts.

Iodoform of course is always attended by the disadvantage of its peculiar odour, and one of its inodorous allies, such as 'iodol' or 'xeroform', may conveniently be substituted for it.

These powders are particularly useful in treating mucous patches and condylomata about the anus and perineum, and also for the moist eruptions of congenital syphilis, which occur about the buttocks of infants. Half the trouble in such cases

is to keep the infant dry, as otherwise rapid ulceration may set in. To do this powders are a great help. They are also frequently used to sprinkle upon the later ulcerative lesions, and have an excellent effect. Sometimes an ointment is applied after the powder has been sprinkled.

5. *Plasters.* Plasters containing mercury either alone or in combination with other substances may be employed with benefit in localised syphilitic swellings and thickenings, especially where it is desirable to maintain a slow but constant absorption of the drug. It is possible to exert with them some pressure and they retain to a certain degree the natural moisture of the skin. In France, under the influence of tradition, the plasters of Vigo (*System*, Vol. II, p. 210) are still employed, or at least were until recently, as a vehicle for the introduction of mercury into the system, although it is a dirty and unscientific method. For the treatment of local and non-ulcerative lesions, on the other hand, they are to be recommended. Unna has used them largely, and plasters made according to his prescriptions may easily be obtained. They are made up in lengths of 1 metre with a width of 20 centimetres, and may be obtained of different strengths of mercury. Some contain as much as 30 grammes of mercury to the plaster, and in some carbolic acid or salicylic acid or resorcin are also found. Probably the best are those made by Beiersdorf & Co., of Hamburg; but very good preparations are now made in this country.

6. *Cauterizing reagents.* These are of use in treating moist lesions, i.e. mucous tubercles or condylomata, whether in the mouth or elsewhere. In treating mucous patches in the mouth the best reagents are solutions of chromic acid or cyanide of mercury (2-4 per cent.); they are recommended for leukoplakia and chronic ulcers of the tongue also. Two warnings are

necessary to those who propose to use caustics for the mucous membranes of the mouth and tongue. Firstly, not to cauterize too large an area at any one time, because not only excessive pain is produced, but swelling of the parts may lead to dangerous dyspnoea ; and, secondly, to use them extremely cautiously upon tertiary lesions and leukoplakia, owing to the risk of lighting up malignant disease. Other useful caustics are nitrate of silver in 10 per cent. solution, or even in solid form, and zinc chloride.

In treating phagedaenic ulceration it is often necessary to have recourse to Volkmann's spoon, for which purpose of course the patient must be anaesthetized, but subsequently the application of a cauterizing agent is advisable. The acid nitrate of mercury is usually recommended, or even nitric acid itself. They may, too, be used occasionally with advantage for fungating or framboesiform syphilides.

Such are the chief methods of influencing the course of syphilis by means of external applications, but, useful although they may be in certain cases, it must always be remembered that at best they are of very secondary importance compared with the constitutional treatment of the disease ; but that is another story.

Wm. S. Arabin

Harold Davis.

BIBLIOGRAPHY

1. Lancereaux, *Traité de Syphilis* : Paris, 1873.
2. Berkeley Hill and Cooper, *Syphilis and Local Contagious Disorders*, 2nd ed., p. 2 : London, 1881.
3. Torella, *Tractatus cum consiliis contra Pudendagram, seu morbum gallicum* : Rome, 1497.
4. Bedthencourt (quoted by Devergie), *Recherches historiques et médicales sur l'origine, etc., de la syphilis* : Paris, 1834, p. 16.
5. Leonicens, *Libellus de epidemia quam vulgo morbum gallicum vocant*, 1497.
6. Fallopius, *Tractatus de morbo gallico* : Padua, 1564.
7. John of Vigo (Genoa), *Practica copiosa in Arte chirurgica, etc.* : Rome, 1514.
8. Massa, *Venetus de Morbo gallico*, 1536.
9. Fernel, *De abditis rerum causis Libri Duo* : Paris, 1548.
10. Devergie, *Recherches historiques et médicales, etc.* : 1834.
11. John Hunter, *Treatise on Venereal Diseases* : London, 1786.
12. Benjamin Bell, *Treatise on Gonorrhoea Virulenta and Lues Venerea* : Edinburgh, 1793.
13. Lagneau, *Exposé des symptomes de la maladie vénérienne* : Paris, 1818.
14. Cazenave, *Traité des Syphilides* : Paris, 1893.
15. Martins, *Mémoires sur les causes générales des Syphilides* : Paris, 1838.
16. Gibert, *Manuel des maladies vénériennes* : Paris, 1836 ; and *Traité pratique des Maladies de la Peau et de Syphilis* : Paris, 1860.
17. Bazin, *Leçons théoriques et cliniques sur les Syphilides* : Paris, 1834.
18. Devergie, *Clinique de la maladie syphilitique* : Paris, 1836.
19. Ricord, *Maladies vénériennes* : Paris, 1838.
20. Bateman, *Cutaneous Diseases*, p. 329 : London, 1825.
21. Carmichael, *Essay on Venereal Diseases* : Dublin, 1814.
22. Astruc, *De morbis venereis*, 1738 ; and *A Treatise of Venereal Diseases* (transl.) : London, 1754.
23. Hutchinson, *Syphilis* : London, 1887, p. 20.
24. Fournier, *Leçons sur la syphilis chez la femme*, p. 345 : Paris, 1873.
25. Taylor, R. W., *Genito-urinary and Venereal Diseases and Syphilis*, 3rd ed., p. 537 : London, 1905.
26. Kaposi, *Die Syphilis der Haut*. II. Lief., Wien, 1874, p. 75.
27. Crocker, *Diseases of the Skin* : London, 3rd ed.

28. Lang, Lehrbuch von Geschlechtskrankheiten : Wiesbaden, 1904, p. 166.
29. Schwedianer, Traité complet sur les symptomes et les maladies syphilitiques, 1817.
30. Erasmus Wilson, Syphilis and Syphilitic Eruptions : London, 1852.
31. Biett (quoted by Cazenave, loc. cit.).
32. Cazenave et Schedel, Abrégé pratique des maladies de la peau, 3rd ed. : Paris, 1838.
33. Unna, Histopathology of the Skin (English translation by Walker): Edinburgh, 1897.
34. Campana, Dei morbi sifilitici e venerei : Genoa, 1888.
35. Ehrmann, Centralblatt für Bakteriologie, xlv, p. 223.
36. Hjelmmann, Archiv für Dermatologie und Syphilis, xiv, 1908, p. 57.
37. Sandmann, Impfung mit Resten von syphilitischen Efflorescenzen. Derm. Zeitschr., xv, 1908, p. 289.
38. Hoffmann, *ibid.*, p. 292.
39. Plenck, Classification of Diseases of the Skin, 1783.
40. Willan, On Cutaneous Diseases : London, 1808.
41. Trappe, Sur les excroissances et les pustules vénériennes : Paris, 1802.
42. Cullerier, Propositions sur les maladies syphilitiques : Paris, 1832.
43. Alibert, Maladies de la peau : Paris, 1825.
44. Bassereau, Traité des affections de la peau symptomatiques de la Syphilis : Paris, 1852.
45. Hardy, Leçons sur la scrophule et les scrophulides, et sur la Syphilis et les Syphilides : Paris, 1864.
46. Sangster, Secondary Syphilitic Eruptions with Points in Diagnosis. Lancet, 1883, vol. ii, p. 939.
47. Neumann, Diagnostik und Therapie der Hautsyphiliden. Wiener Klinik, 1875.
48. Lesser, Geschlechtskrankheiten : Berlin, 1906.
49. Max Joseph, Lehrbuch der Haut und Geschlechtskrankheiten : Leipzig, 1907.
50. Finger, Die Syphilis und die venerischen Krankheiten, 4te Aufl. : Leipzig and Vienna, 1896.
51. Neisser (in a private letter to one of the Authors (P. A.)).
52. Bergh, Altérations des ongles dans la Syphilis. Hospital Tidende. Ref. Annales de Dermat., 1882.
53. Unna, Neuroleprides und Neurosyphilides. Derm. Stud. ii. 3, and Histopathology of the Skin (English translation).
54. Phillips, Syphilitic Fever resembling Tertian Ague. Brit. Med. Journal, 1889, vol. ii, p. 1217.
55. Burney Yeo, A Case of Pyrexial Syphilis. Trans. Clin. Soc. London, 1884, xvii, pp. 108-14.

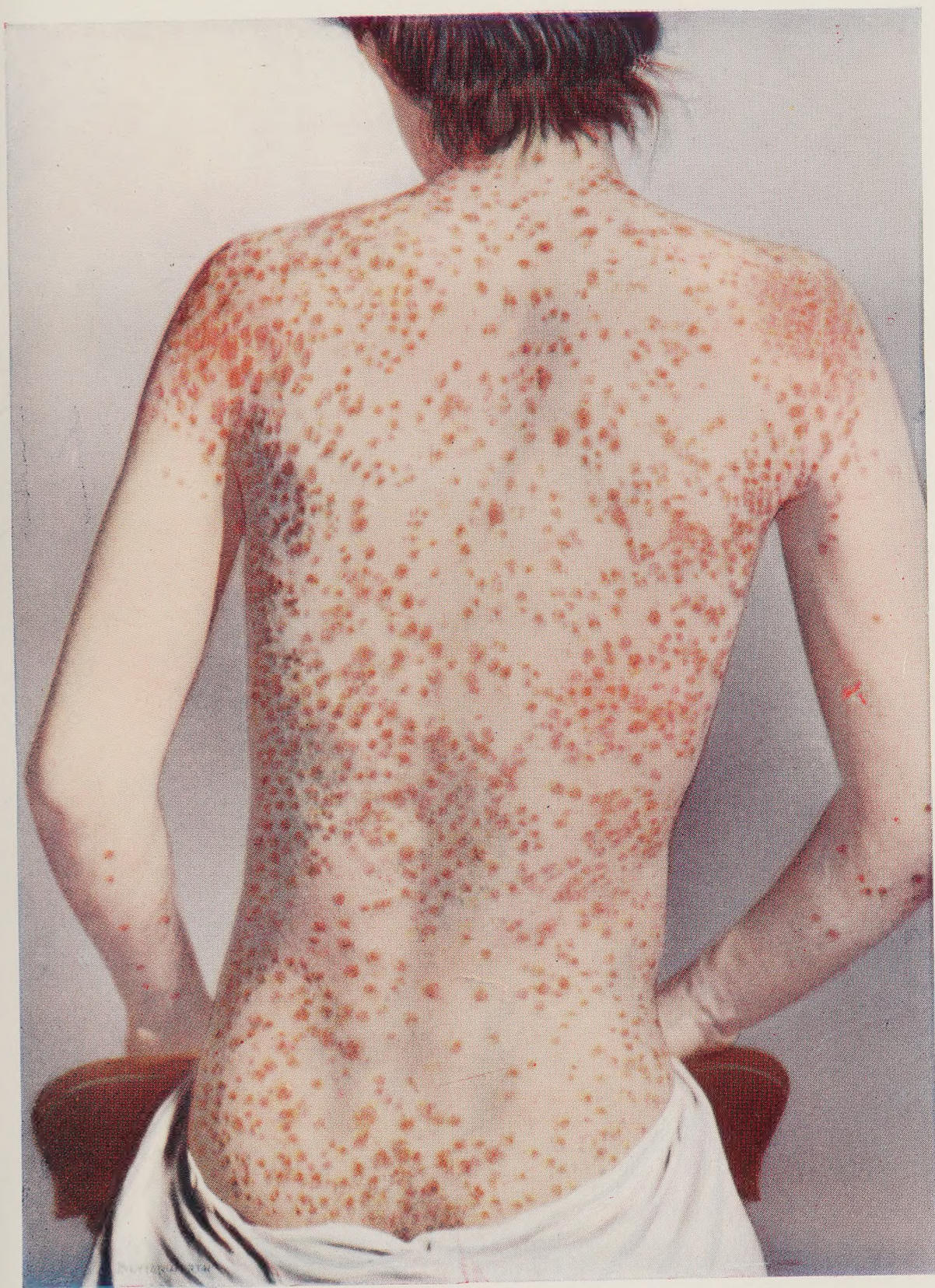
56. Besiadecki, Beiträge zur physiologischen und pathologischen Anatomie der Haut.
57. Kaposi, Syphilis der Haut. Wien, 1874, ii, p. 88.
58. Neumann, Vierteljahrschrift für Dermatologie und Syphilis, 1885, p. 209.
59. Veillon et Gerard, Presse Médicale : Paris, 1904, p. 839.
60. Richards and Hunt, Lancet, 1906, i, p. 667.
61. Gaucher, Leçons sur les maladies de la peau, 2 vols : Paris, 1895.
62. Hutchinson, Syphilitic Leucoderma and the Pigmentary Syphilide. Brit. Med. Journ., Jan. 9, 1907, p. 85.
63. Neisser, Leucoderma syphiliticum. Vierteljahrschr. für Derm. und Syph., 1883, p. 491.
64. Haslund, Leucoderma syphiliticum. Arch. für Derm. und Syph., 1886, p. 675.
65. Hullen, Ann. de Derm. et Syph., 1903, p. 731.
66. Ehrmann, Die Pigment-Anomalien in Mrack's Handbuch der Hautkrankheiten, 1905.
67. Brandweiner, Leucoderma syphiliticum : Leipzig, 1907.
68. Gaucher, Le chancre et les Syphilides : Paris, 1907, p. 113.
69. Gaucher et Louste, Syphilide papuleuse miliaire kératosique. Bull. de la Soc. Franç. de Dermatologie, 1905.
70. Stelwagon, Diseases of the Skin : Philadelphia, 1902, p. 744.
71. Duhring, Diseases of the Skin : Philadelphia.
72. White and Martin, Genito-urinary and Venereal Diseases, 1900.
73. Hutchinson, London Hospital Lectures and Reports, 1866, p. 72.
74. Liveing, Diseases of the Skin, 5th ed., p. 346.
75. Fordyce, Journ. Cutaneous Medicine, 1901, p. 393.
76. Abraham, Trans. Derm. Soc. Great Britain and Ireland, ii, p. 64.
77. Fracastorius, De Morbis Contagionis, 1555, quoted in Aphrodisiacus, 1736.
78. Heller, Die Krankheiten der Nägel : Berlin, 1900.
79. R. W. Taylor, Pathology and Treatment of Venereal Diseases : Edinburgh and London, 1895.
80. Heller, Striae longitudinales medianae unguinum syphiliticae. Dermat. Zeitschr., xvi, 1909, p. 31.
81. Bergh, Altérations des ongles dans la Syphilis. Hospital Tidende. Ref. Annales de Dermatologie, 1882.
82. Thibierge, Syphilis et Vitiligo. Ann. de Derm. et Syph., Feb. 1905.
83. Dore, S. E., Syphilitic Eruption in a Man with Psoriasis. Proc. Roy. Soc. Med., Dec., 1908.
84. Morris, Sir Malcolm, Diseases of the Skin : Cassell, 1908.
85. Davis, Haldin, Two Cases of Lupus Erythematosus. Proc. Roy. Soc. Med., vol. ii, part 1, Dermatological Section, p. 160.
86. Adamson, Multiple Rodent Ulcer. Lancet, 1908, vol. ii, p. 1133.

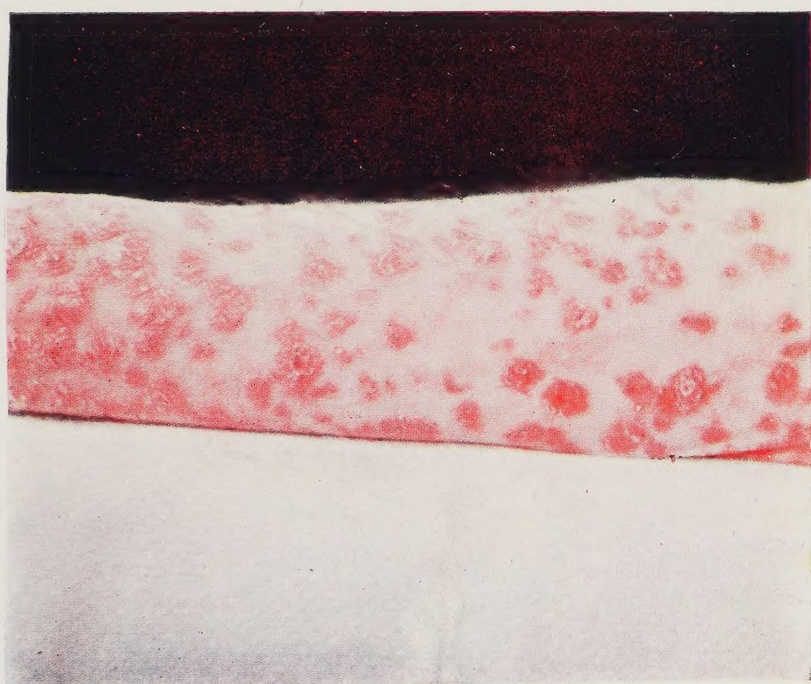
87. Butlin and Spencer, Diseases of the Tongue : Cassell, 1900.
88. Lane, Ernest. *Lancet*, June, 1910.
89. Pflanz, Ueber idiopathische Schleimhautleukoplakien. *Dermat. Zeitschr.* xvi, 1909, p. 619.
90. Adamson, Skin Affections of Childhood. Oxford Medical Publications, 1907.
91. Sequeira, Congenital Syphilis with Gummatous Lesions. *Proc. Roy. Soc. Med.*, vol. i, Dermatological Section, p. 183.
92. Adamson, Reports of the Society for the Study of Disease in Children, p. 93 (Discussion on Inherited Syphilis).
93. Davis, Case of Granuloma Annulare. *Proc. Roy. Soc. Med.*, vol. iii, March, 1910.
94. Wechselmann, Berlin, *klin. Wochenschr.*, 1910, H. 27, p. 1261.

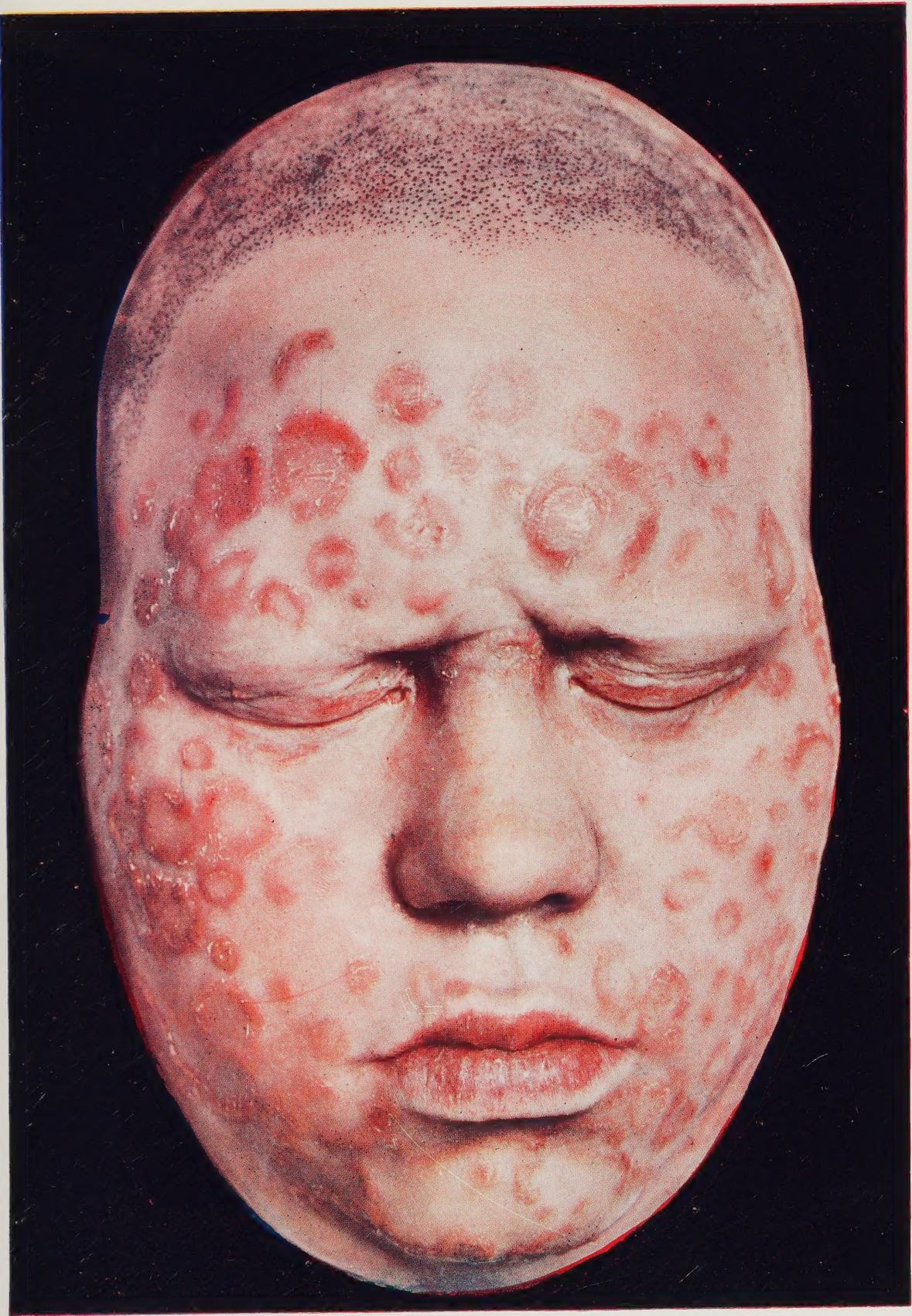
APPENDIX

THE chemical compound dichlorhydrat-diamidoarsenobenzol was mentioned as the latest of the arsenical bodies to be applied to the treatment of syphilis. Although it is not long since those words were written, enough has been done to make it seem probable that in this substance has been found the perfect specific for syphilis. For the last five years Ehrlich has been working incessantly on this subject and this preparation which is shortly known as No. 606 (so called because it represents the six hundred and sixth attempt which he made to find a body which will cure syphilis in one dose), the 'Therapia sterilisatio magna'. There is reason to believe that he has succeeded. No. 606 is not as yet to be obtained commercially and has only been entrusted by the discoverer to hospitals for clinical trial, but there is a wonderful consensus of opinion in their reports as to the marvellous results obtained from its use. Not only do chancres resolve, rashes disappear, gummatous ulcers heal with the most amazing rapidity, but spirochaetes disappear and a positive serum reaction is converted into a negative after a single injection. Cases of malignant and severe congenital disease which are so often resistant to mercury are quite amenable to No. 606. As far as can now be seen the patients are cured by the single injection.

The technique of administration is complicated because the preparation is only stable in the form of the bichloride and it cannot be given as this salt. It has, therefore, to be reduced before use to the mono- or di-sodium salt, and as this quickly perishes it has to be made freshly each time by the addition of sodium hydrate to the solution of the bichloride. The volume of the injection when ready for administration is considerable—about half a pint. For this reason it is conveniently divided into two equal portions, one of which is injected into each buttock. Owing to the bulk of the dose and to the presence of free sodium hydrate the pain occasioned is very severe and may last several days, and the patient must be kept in bed. The temperature rises to about 101 degrees. Up to the present time almost all the cases treated have been in Germany, but recently, through the courtesy of Professor Ehrlich, McDonagh has been able to obtain a sample of the drug and he is able fully to corroborate the German accounts. He wrote a short description of the method in the August number of the *British Journal of Dermatology* (1910) and by the time this volume appears his clinical results will no doubt have been published.















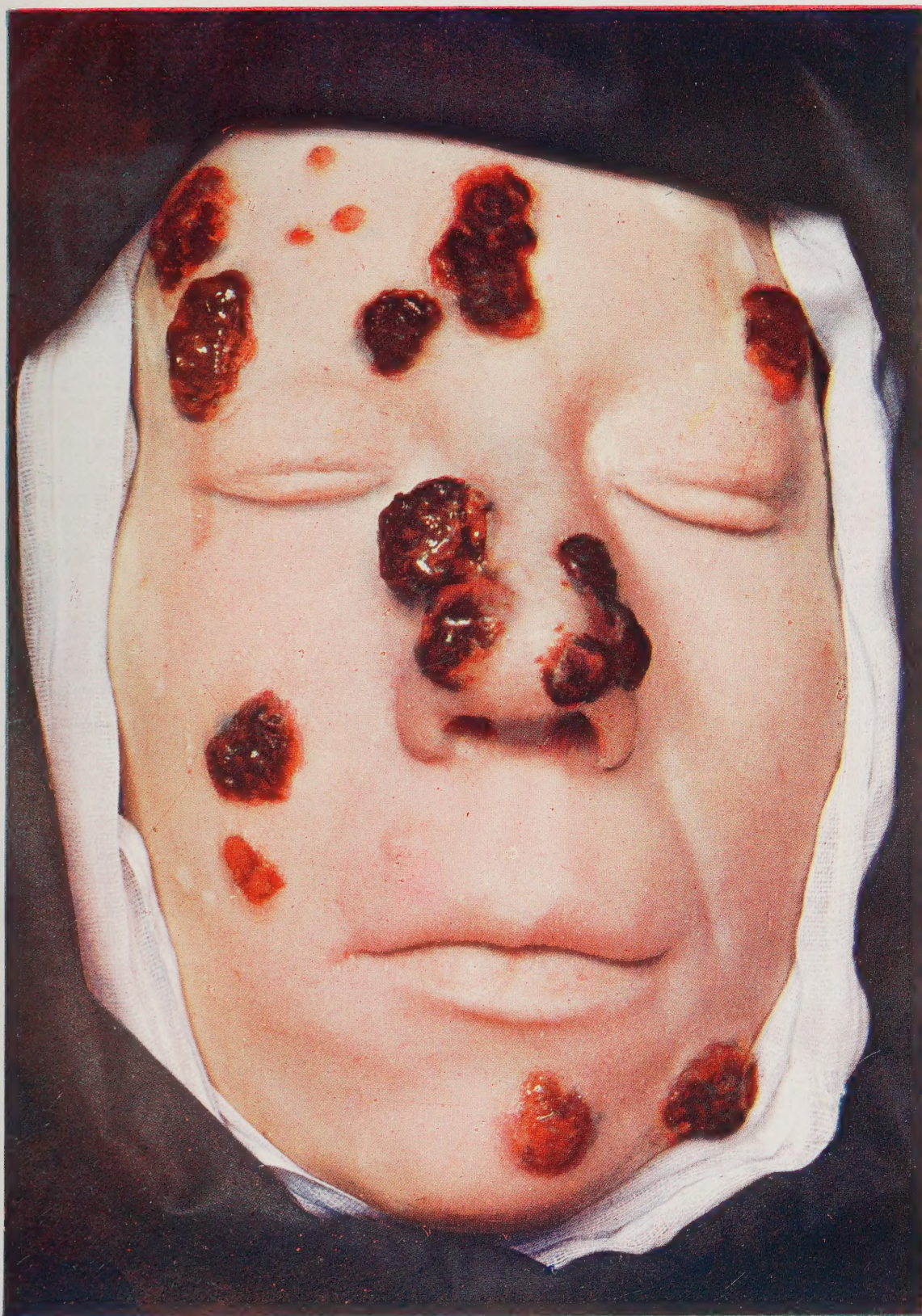








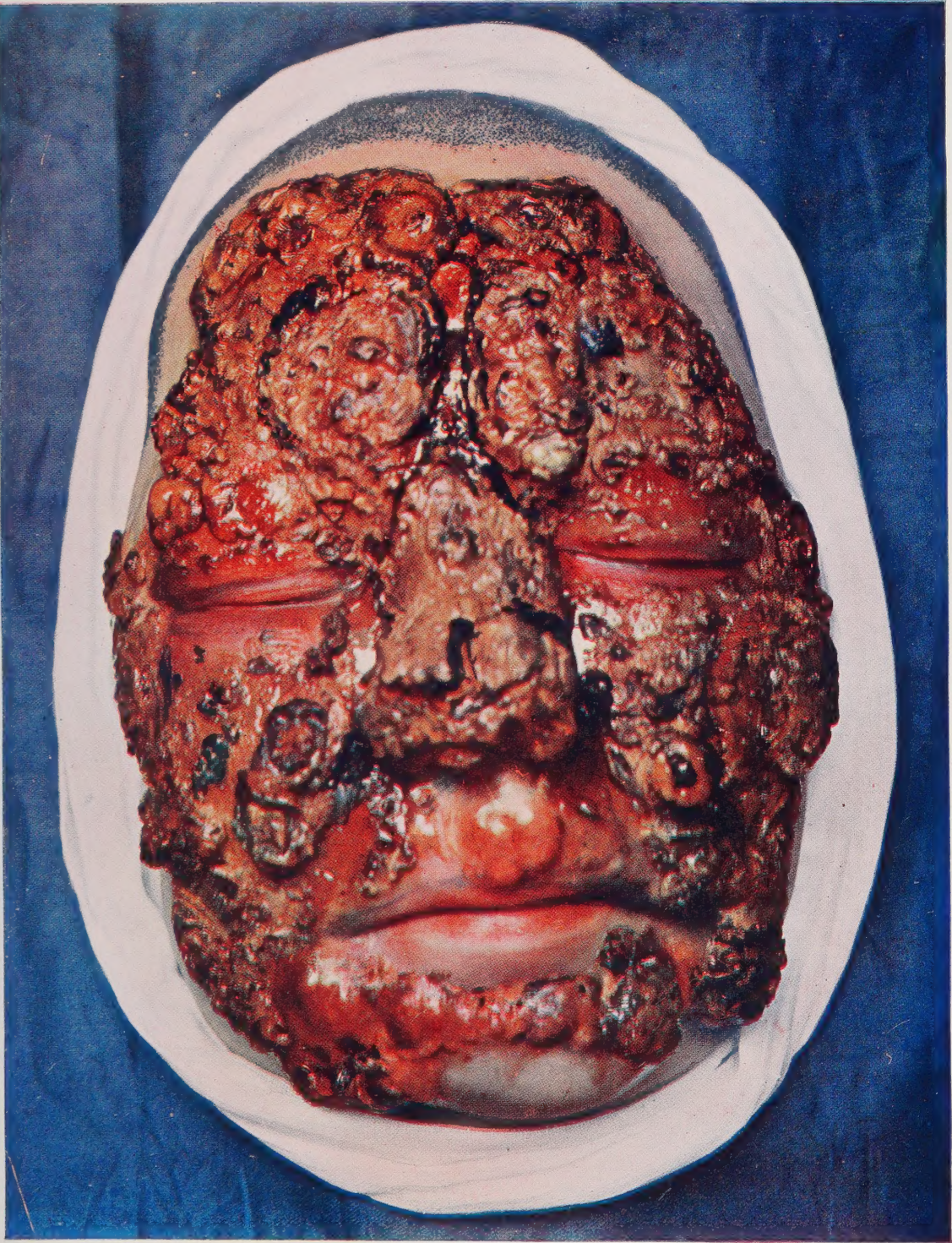




























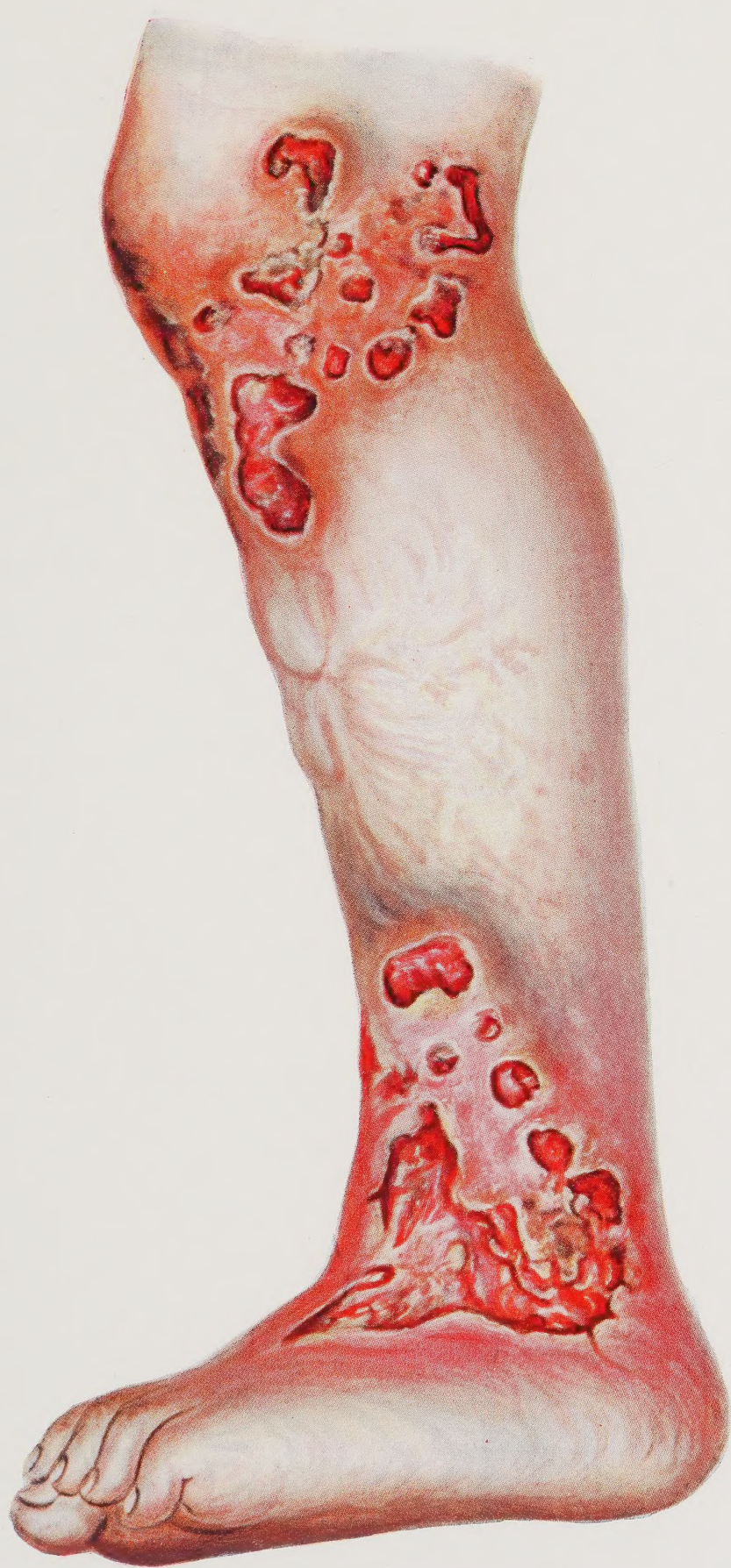












PLATE XXV



Lower limb showing a late nodular syphilide with some ulceration and marked incrustation. From a case under the care of Dr. Abraham, at the West London Hospital.

PLATE XXVI



A syphilitic eruption early in the course of the disease simulating impetigo gestationis. From a case under the care of Dr. Abraham, at the West London Hospital.

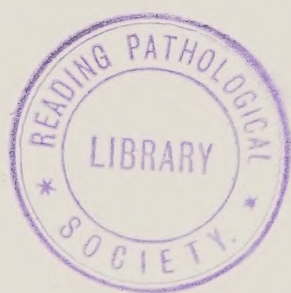


PLATE XXVII



A sloughing ulcer of the groin in a child simulating phagedaena, but really due to a pure streptococcal infection. From a case under the care of Dr. Abraham, at the West London Hospital.







OCULAR SYPHILIS

BY

C. DEVEREUX MARSHALL, F.R.C.S.

CHAPTER XI

PRIMARY SYPHILIS ABOUT THE EYE

ANY exposed surface may be the seat of a primary syphilitic infection, and the eyelids and conjunctivæ are no exception to the rule. Most frequently the chancre is on the conjunctiva. It may, of course, occur anywhere ; but the lower palpebral conjunctiva, the cul-de-sac, and the lid margin, are the most common situations. Next in frequency comes the inner angle of the eyelids, then the upper lid and cul-de-sac ; next comes the ocular conjunctiva, and the least frequent of all is the cutaneous surface of either lid.

The primary sore presents a hard indurated mass, the surface of which is covered with a pseudo-membrane (Plate XXXI, Figs. 2 and 3). The affected lid is usually everted, and there is early enlargement of the pre-auricular and posterior cervical lymphatic glands if the sore is near the outer angle of the eyelids, if near the inner canthus the submaxillary glands are the most affected. The amount of oedema accompanying it varies considerably, if the surface is much irritated it is liable to be great, otherwise it may be insignificant. The ulcer itself often has the appearance of a breaking-down malignant growth.

Aetiology. The cause of a chancre coming in this situation is direct infection, and the most common way in which this is brought about is either by a scratch from an infected finger-nail or by kissing. For this latter reason it is more frequently seen in children than in adults. A person suffering

from mucous tubercles about the mouth is in a condition to inoculate any abraded surfaces, and it seems to be a habit with some women who are perpetually kissing children to place their lips over the eye. The same procedure may, of course, infect adults. There is, however, another way in which they may get their conjunctiva infected, and that is by the practice which workmen sometimes have of endeavouring to remove a foreign body from the eye of another person by licking the conjunctival surface with the tongue. Should such a person be suffering from a syphilitic lesion of the mouth, infection is almost certain to take place. In some such way as this it may be brought about.

Diagnosis. A hard chancre on the lids or conjunctiva is usually a very malignant-looking ulcer. There is a considerable amount of hard induration round it very similar to that seen in a sarcoma or epithelioma, but from these growths it may generally be distinguished by the history. A hard chancre begins as a pimple which rapidly increases in size, far more rapidly than any malignant growth is likely to do. A chancre may be mistaken for an inflamed chalazion or a sty, but on careful examination the conditions present are found to be somewhat different, for in either of the latter conditions a meibomian gland or a hair follicle is usually seen to be the centre of the trouble. A tubercular lesion is much softer, and of far longer duration than a chancre; and besides this, other evidences of tubercle are almost certain to be present.

A breaking-down gumma is not very likely to be mistaken for a chancre. We have a history of the infection years ago, while a primary growth is more rapid in its development and is altogether more acute in its appearance.

Should any doubt exist, time will quickly settle the matter.

If a primary lesion be left alone without general treatment, a secondary rash will quickly follow, and if mercury be given, the primary sore will heal and melt away with astonishing rapidity. Some secondary symptoms are almost sure to become apparent, in spite of treatment, though it may mask most of them.

Prognosis. As a rule a hard chancre does not lead to any serious destruction of the eyelid, and probably never does so unless it gets further inoculated with some vigorous septic organism. When appropriate treatment is applied, the induration melts away, and the sore heals, leaving only a very small scar.

Treatment. This is precisely the same as the treatment of primary syphilis wherever it is met (vol. ii, pp. 255-335). Mercury given internally is the most important, and under its action the chancre will very quickly disappear. Locally lotio nigra or almost any preparation of mercury will greatly assist matters. The surface may with advantage be dusted with calomel or iodide of mercury.

The use of caustics and strong remedies locally should not on any account be resorted to ; they will not aid in curing the disease, and they will leave far larger scars than if the sore be left to heal by the aid of mercurial treatment only.

CHAPTER XII

SECONDARY AND TERTIARY SYPHILIS OF THE EYE

WE have no difficulty whatever in separating primary from secondary or tertiary syphilis, at any rate as far as the eye is concerned, but where secondary syphilis ends, and tertiary commences, is nothing like so sharply defined, for one stage passes imperceptibly into the other ; it is therefore impossible to differentiate all manifestations.

HYPERAEMIA OF THE CONJUNCTIVA is a trivial affection which is not uncommonly seen during secondary syphilis. It has nothing to distinguish it from a similar condition produced by almost any slight irritation, e.g. errors of refraction, excessive smoking, &c. There is no discharge, but the palpebral conjunctiva is redder than normal, and this causes a sensation of burning or pricking of the eyes.

Treatment. But little need be done for this locally, beyond keeping the eye clean with boracic lotion or perchloride of mercury 1-5,000 to 1-10,000. It will all subside as the patient gets under the influence of mercury, though it must be carefully distinguished from a commencing iritis.

MUCOUS PATCHES and ulceration may occur along the edges of the eyelids and on the moist conjunctival surface adjoining. These are rare, but differ in no respect from the mucous tubercles seen in the mouth or on the lips, and in fact in any situation where the surface is kept moist. They occur during the secondary stage and cause loss of the eyelashes. Besides their

general treatment, perchloride of mercury lotion 1-5,000 will quickly lead to their disappearance.

Most of the ocular manifestations of syphilis occur during the tertiary stage of the disease, and such manifestations may occur anywhere, no matter how long a time has elapsed since the primary infection.

Gummata occur on the lids and conjunctiva and may involve surrounding structures. There is nothing particularly characteristic about gummata in this situation, they present the same appearance here as in any other part of the body, and the conditions are similar. It is, however, important to remember that they *do* occur, and when in the region of the lacrimal sac the appearance very closely simulates a lacrimal abscess; this is particularly so when broken down. The surface is suppurating, a probe may be passed into it and may even enter the nasal duct if this has been opened. The general appearance and history often settle the matter, while putting the patient on antisyphilitic treatment will very quickly clear up the whole thing, whereas fomentations and the treatment usually adopted for lacrimal abscesses is altogether inefficient.

STRICTURE OF THE NASAL DUCT

This troublesome condition may be caused by inflammation of syphilitic origin affecting the periosteum lining the nasal duct. It is, however, not a very common cause of lacrimal obstruction. This condition is so commonly seen in all classes of society that, unless there is definite evidence of syphilitic disease about the nose and surrounding sinuses, it is hardly fair to ascribe the obstruction to it. Still, there are a certain number of cases which are definitely the result of syphilitic osteitis, and frequently we have ozoena present at the same

time. There are scores of cases of nasal duct strictures which are without doubt due to treatment. A simple mucocele forms, and there is epiphora. A stricture of the duct is diagnosed, though usually it is not present at this stage, the canaliculus is slit up, and probes are passed frequently. A stricture at last forms, purely as the result of this treatment, and it is rather more likely to form in a syphilitic subject than in one who has no particular tendency to bone disease.

Symptoms. In the truly syphilitic cases there is at first periostitis, which may start in the nasal duct itself, or else may extend to it from the nasal cavity. This causes an obstruction to the flow of fluid down the duct and swelling and inflammation of the mucous membrane is the result. The lacrimal sac itself becomes distended, secretion remains pent up and cannot find its way into the nose, decomposition takes place, the contents are virulently septic and the pus which accumulates can usually be squeezed back through the puncta by pressure over the distended sac. This causes irritation of the conjunctiva with lachrimation, and as there is no escape for the fluid, it remains in the eye until the conjunctival sac can hold no more ; it then overflows and runs down the face. It must never be forgotten that having a reservoir of septic pus in close proximity to the eye is an extremely dangerous thing, as any wound or abrasion is sure to become infected, and the slightest scratch of the cornea will lead to an infective hypopyon ulcer which may destroy the eye in a few days, while should it be necessary at any time to do an intra-ocular operation, a primary suppuration of the whole eyeball is likely to result, while the fellow eye may be lost from sympathetic ophthalmitis. The condition in itself is

comparatively simple, but its consequences may be most serious.

Treatment. The first thing to do in a case in which stricture of the nasal duct is suspected is to ascertain whether or no a stricture does exist. Most cases which are so freely diagnosed as cases of stricture have no stricture whatever before treatment is commenced. It is a good plan to first of all dilate the punctum with a conical steel dilator, and thus make it large enough to admit the fine nozzle of a lacrimal syringe. This can be passed into the sac, and its end directed down the nasal duct. Fluid is then forced out of it, and if it passes into the nose, probably no other treatment will be necessary and the parts will, by being kept clean and free from accumulations, quickly recover their tone, and the case will be cured. If, however, water will not enter the nose a *fine* probe may be passed along the canaliculus and down the duct, and if this can be done fluid is almost certain to follow afterwards. If, however, there is a definite bony obstruction—and these syphilitic cases provide most of them—force must be used to get through it, and in order to do this the canaliculus has to be slit, and a probe must be pushed down; it is then withdrawn, and a style, which will have to be worn for months or years, can be made to follow it.

An infinitely better plan, however, is to acknowledge defeat, and to remove the distended and septic lacrimal sac, and thus once and for all to permanently close the nasal duct. The patient is cured in a week, whereas lifelong trouble is caused if attempts are made to keep the duct open. The duct always contracts, probes have to be passed constantly, or a style has to be worn permanently.

It may be asked what becomes of the tears after the duct

is obliterated? As a matter of fact there is hardly any epiphora after the sac is removed. Nearly all the watering which is so troublesome in cases with a dilated sac is due to irritation of discharges and regurgitation. Remove the source, and hardly any watering takes place. Of course, if the patient goes out in a strong or cold wind the eye does water, much the same as healthy eyes do, but the watering is not to be compared with the miserable condition which exists when pus is regurgitating into the conjunctival sac, and in addition the risk of infecting the eyeball has ceased with the drying up of the discharge. When once the sac is removed it is a matter of indifference whether there is a stricture of the nasal duct or not. If, however, the surgeon elects to make a track from the eye to the nose, the greatest difficulty may be experienced, the bone may be densely hard, and it may be impossible to do more than make a fresh track altogether, which is not very likely to remain open, unless a style is kept in it; and after all this has been done, the patient is far more uncomfortable than if the radical operation of removal of the sac were undertaken when it was first discovered that it would not yield to simple treatment. After removal of the sac the patient is cured in a few days; the other method scarcely ever cures them.

SYPHILITIC DISEASE OF THE ORBIT

This consists either of an acute or chronic periostitis or else of the development of a gumma within the orbit.

An acute periostitis is far more frequently due to some septic infection than to syphilis, and if it does occur it is due to an infection implanted on a diseased bone. The most

frequent orbital condition of syphilitic origin is a chronic periostitis or the formation of a gumma.

Symptoms. The patient complains of a dull aching pain which is worse at night. There is local tenderness on pressure, with oedema of the surrounding parts. Pressure on the nerves or muscles in the orbit is likely to produce diplopia from paralysis of one or more muscles, and if deeply-seated the pressure may be exerted on the optic nerve, which may lead to oedema of the head of the nerve and the appearance of optic neuritis, which, unless relieved, will rapidly go on to atrophy. If the nerve is affected far back there may be no appearance of optic neuritis at all, the whole affection may be retrobulbar; but atrophy nevertheless is likely to supervene. A gumma produces much the same symptoms. It usually grows from one of the orbital walls, most frequently the outer, and, according to its size and position, it produces more or less marked symptoms. If situated at or near the margin of the orbit the tumours can be felt, and there may be some diplopia due to pressure on the globe. If situated far back it produces all the symptoms of an orbital tumour. Paralysis of one or more, or even of all the ocular muscles, may result. The eyeball is displaced, in consequence of pressure of the growth, which if situated at the back of the orbit is more than likely to cause irreparable damage to the optic nerve, as the connective tissue at and about the optic foramen and sphenoidal fissure is very prone to become involved.

Diagnosis. The history is all-important as an aid to diagnosis, and, if this should seem to be negative, great care should be taken to search for any sign there may be of old syphilitic scars in any part of the body; but many of these cases must be obscure until the effect of treatment is seen.

Any growth, malignant or otherwise, will give much the same symptoms. The possibility of there being a foreign body in the orbit should never be forgotten. Many cases of supposed orbital tumour have been found to be unsuspected splinters of wood, pipe-stems, &c., which have become lodged in the orbital cavity.

Treatment. In any doubtful case mercury and iodide should be at once tried, and the patient rapidly got under the influence of both these drugs, while the effect upon the symptoms should be carefully watched. Nothing is more annoying than to excise a tumour, wherever situated, and afterwards to find it is simply a gumma, and if an orbit is cleared out under the impression that it contains a malignant growth the consequences may be serious. On the other hand it is still more serious to leave a malignant growth for any length of time under the impression it is a gumma. In all these cases antisypilitic remedies had better be tried first, at least in the early stages, when there is a doubt as to the diagnosis. It is never necessary to exenterate an orbit for a gumma, as such growths will readily yield to iodide and mercury, and it is unlikely that any surgical treatment will be required. Oleate of mercury may be rubbed into the surrounding parts, and subconjunctival injections of mercury have been given; but it is better not to use the latter, as it may give rise to irritation and further swelling, and thus lead to the belief that the tumour is increasing in size, when in reality it may be diminishing.

IRIDO-CYCLITIS

Perhaps the most wide-reaching condition produced by ocular syphilis is irido-cyclitis, for this really includes the affections of the whole of the uveal track, including the inter-

stitial substance of the cornea, the iris, and ciliary body, the choroid, and also the sclerotic (Plate XXXI, Fig. 1).

It is well known what a peculiar affinity syphilis has for attacking connective tissue elements, and all these ocular structures are derived from the mesoblast, so it is hardly possible for one of them to be attacked alone; usually the inflammation spreads from its original seat at least to the neighbouring parts of other structures.

The ciliary body presides over the nutrition of these various mesoblastic parts; it contains a most elaborate system of blood-vessels and nerves, and so we find that, as a rule, it is the first structure which shows signs of the disease.

Although the whole of the uveal track is more or less involved in syphilitic disease of any part of it, yet in the majority of cases such inflammation attacks one structure more than another, and we are able, for purposes of description, to discuss the affection of each part separately. However, the iris and ciliary body are so intimately connected with each other that it is almost impossible to separate them, and so the condition known as irido-cyclitis will first be described.

Pathology. Syphilitic irido-cyclitis is essentially of a plastic nature (Plate XXXI, Fig. 1). We first of all notice a ciliary blush, and if we illuminate the eye by the oblique method, and carefully examine the surface of the iris with the loupe, we can frequently see dilated vessels on the iris; we also notice the iris has a somewhat muddy and hazy appearance. In this early stage of the disease all the symptoms of inflammation are present, and almost from the first there is exudation of small round cells from the vessels of the ciliary body and iris, which renders the iris and pupil less bright than usual. As the process goes on, the number

of cells exuded becomes greater, and at the same time the exudation becomes fibrinous, with the result that adhesions are quickly formed between any two adjacent structures, and the two which can most readily adhere are the iris and the anterior capsule of the lens, thus giving rise to the development of posterior synechiae. These form simply on account of the fact that the two structures are normally in contact except for the interposition of a thin layer of aqueous.

It will be remembered that the back of the iris is covered with a layer of pigment, and we consequently find this adhering to the lens capsule. If these adhesions can be broken down, some of the pigment will adhere to the capsule and remain there permanently. The aqueous becomes so thick, and the exudation of cells so enormous, that we sometimes see them collected together at the bottom of the anterior chamber, giving an appearance like a small hypopyon. These cells and the plastic exudation have a great tendency to block up the spaces of Fontana and the angle of the anterior chamber, and may thus lead to increase of tension and a glaucomatous hardness of the eyeball. This is not all, for it may happen that the blood-vessels of the iris become so engorged that one or more may rupture and cause a hyphaema (blood in the anterior chamber). Even if this does not occur, the exudation may be so fibrinous and plastic that unless the pupil be kept widely dilated, an inflammatory membrane will spread across the small pupil, and by the time the attack is over it may, in a severe case, completely close the pupil, so that not only is there great interference with vision, but, what is still more important, the circulation of fluid from the posterior chamber (between the iris and anterior lens capsule) to the anterior chamber, which normally passes through the pupil, may be

completely obstructed, and thus we get the condition known as bombé iris, which is caused by the pupillary margin being completely adherent to the lens capsule. The fluid in the posterior chamber pushes forward the non-adherent portions of the iris into the anterior chamber, and the bulging membrane is seen between its attachment at the root, and its newly-formed attachment to the lens capsule near the pupil. It is thus obvious that not only is fluid unable to pass forwards, but, owing to the bulging of the iris, the angle of the anterior chamber, which is so necessary to the nutrition of the eyeball, becomes more completely closed than ever, and thus we get the tension rising to as high a degree as we find in idiopathic glaucoma.

Symptoms and course. As regards the symptoms, pain is usually one of the first to be complained of. We find on examination there is a distinct *ciliary* blush, which must not on any account be mistaken for a simple conjunctivitis.

The aqueous has a more or less muddy appearance, and the pupil is contracted as it always is when the iris becomes inflamed. If we carefully examine the back of the cornea we find in some instances small dots of so-called keratitis punctata adherent to it (Plate XXXIV), but this is not often seen in the iritis following secondary syphilis.

The pupil will at first be found to be slightly active to light, but very soon it will cease to act at all. Inflammatory exudation will be poured out quickly, and if the pupil is allowed to remain contracted it will not be very long before firm adhesions are set up between the back of the iris and the lens capsule, thus forming posterior synechiae. The depth of the anterior chamber will not be much altered in most cases.

These changes are accompanied by severe pain; not only is the eyeball very tender, but great aching is experienced all

round the orbit and malar region, and frequently extends down the side of the nose. Light entering the eye is very painful to the patient, and although the photophobia is seldom so severe as it is in some corneal conditions, yet it often causes considerable distress.

The exact course of the disease varies considerably according to the severity of the attack, and the way in which it is treated. If the case be treated energetically from the first, it may not last for more than two or three weeks, but severe cases take much longer to run their course. Syphilitic iritis is essentially an acute disease, and in the course of a few weeks, or even days, may do such damage to an eye that its marks will be present to the end of the patient's life. The pupil may be distorted, uveal pigment will almost certainly be left on the lens capsule, or the pupil may be entirely occluded. However slight the attack is, it nearly always leaves some marks behind by which it can be ascertained that the eye has been attacked, though the permanent lesions may be greatly modified by treatment.

Diagnosis. A severe iritis is generally easy to diagnose. The pain is characteristic, the situation of the injection is quite different to that of conjunctivitis, although intense ciliary injection is usually accompanied by conjunctival injection also, but the broad well-defined ciliary blush is very characteristic, and looks much as if a brush wet with vermilion had been drawn round the sclerotic close to the cornea; whereas conjunctival vessels, when injected, are large and separated from each other, and are most obvious away from the cornea. The muddiness of the aqueous may sometimes be confounded with the steamy cornea of an acute glaucoma, but really the two conditions are very different, and the history and general

appearance of the patient at once settle things, for an acute glaucoma is seldom seen except in elderly people, whereas the disease under consideration is generally seen in young persons who at the time are suffering from secondary or tertiary syphilis. If carefully looked for, some adhesions are sure to be seen between the iris and the lens capsule, while the tension, which in glaucoma is so high, is usually but little altered in an acute iritis, though at times it may be somewhat raised, or perhaps lowered. A secondary glaucoma due to iris bombé could not possibly be mistaken for a primary glaucoma.

Prognosis. As regards prognosis, the acute symptoms subside after a greater or less length of time, and in a favourable case the redness and injection will go down in a few weeks ; but more often than not severe damage has been done to the eye. Even if no posterior synechiae are present, some are sure to have formed, and although they may have been broken down with atropine, yet uveal pigment will be found left upon the anterior surface of the lens capsule, though the pupil may have regained its activity. In a more severe case adhesions may have taken place, which will defy the most powerful action of atropine, and will remain, permanently distorting the pupil. These adhesions may, however, do comparatively little harm provided they do not completely bind the pupil down, and effectually close the communication between the anterior and posterior chambers ; although the sight may be more or less damaged, yet the eye will be quite useful.

Should the pupil become completely blocked, a secondary glaucoma is certain to develop with a bulging bombé iris.

This condition of things is extremely serious, for it may be that the sight will be lost altogether ; still, a good deal can be done by treatment, and useful vision may be retained.

When keratitis has been present as well, some corneal opacity may be permanently left, though as a rule the cornea is much less affected than the ciliary body and iris at this stage of the disease.

As regards the question of recurrence : although it is possible to have more than one attack of syphilitic iritis, yet it more frequently happens that after one severe attack recurrence does not take place. The eye hardly ever emerges from an attack without being scarred and damaged in some way or other, and usually the marks are left behind for the remainder of the patient's life ; but the disease differs considerably from the iritis the result of gonorrhoea or rheumatism, for here recurrences are common, but usually nothing like so much damage is done by any one attack. The iritis of syphilitic origin is essentially a plastic variety of the disease, and adhesions form in every possible position ; whereas the other is much more serous, with less tendency to the formation of synechiae.

Treatment. The general treatment of the disease itself is of the greatest importance, and mercury must be vigorously used ; but, in addition to this, the local treatment of the eye is equally necessary. Considering how plastic is the exudation, the pupil must be dilated as fully as possible with atropine at the earliest moment. If this be not done at once, adhesions will form in a very short time ; and even if it is possible to break them down, some pigment will be left adherent to the lens capsule. Should the attack be severe, and some days elapse before atropine is used, the adhesions will be sufficiently strong to resist the dilating power of the drug, and permanent synechiae will remain and will cause the pupil to become more or less distorted. If atropine is used from the

beginning, possibly no adhesions may form at all, and the eye may emerge from the attack little the worse.

It is important to remember that the atropine must be continued for a considerable time, and certainly for a week or more after all signs of injection have gone; if this be not done the iris will form adhesions to the lens capsule even after the eye has regained its normal white appearance.

It not infrequently happens that the tension of an eye may be raised during an attack, and as every one knows how disastrous it is to use atropine in a case of glaucoma, it is sometimes thought that the drug should be left off, or eserine substituted for it. No treatment could be worse. If the tension be raised it is because of plastic exudation filling up the spaces of Fontana, and closing the angle of the anterior chamber. Eserine will increase the vascularity and all signs of inflammation, it will close the pupil and not make the slightest difference to the tension, except possibly to increase it by making the eye more inflamed. Under such circumstances atropine should be pushed still more vigorously, and, with a subsidence of the inflammatory signs, the tension will fall. Should it, in spite of atropine, still keep up, then paracentesis should be done, and, if necessary, be repeated. It is rarely that increased tension gives rise to any serious trouble.

If the pain be severe nothing relieves it so much as leeches. Two leeches applied to the skin, as close to the outer canthus as possible, are frequently the means of giving the patient the first relief from pain he has known for days, and, still further, it sometimes happens that no amount of atropine will dilate the pupil, the eye is injected, the pupil small, and the pain intense. The moment leeches are applied the pain ceases, the injection

becomes much less, and the pupil dilates widely, and from that time forward the attack subsides. This happens so frequently that it is not possible to imagine it to be simple coincidence. In a severe attack which I once treated the same result was obtained from opening the median basilic vein, and from the patient being in agony with his eye, he directly afterwards obtained nearly twelve hours' sleep; the eye was incredibly better the next day, and the attack rapidly subsided.

Heat is particularly useful in relieving pain, and may be applied either dry or moist. Moist heat is more readily obtainable and can be applied with cotton-wool and hot water, and the hotter the patient can be induced to use it the better. A very useful way of applying moist heat is that suggested by Lang. The patient is provided with a basin of very hot water and a wooden spoon; a large piece of cotton-wool is taken and placed in the spoon, which is then dipped in the hot water and applied direct to the eye. The skin of the eye and face can be made by practice to stand a far higher temperature than can the fingers. If dry heat is desired it may best be obtainable by fastening a Japanese muff-warmer on the eye, which is protected by a layer of Gamgee tissue. These muff-warmers are flat metal boxes in which a lighted cartridge (provided for the purpose) is placed. It contains a composition which burns very slowly, and for a considerable time, and generates quite as much heat as is required. Maddox has introduced a wire coil which is heated by an electric current, and thus the same effect is produced.

As regards the application of atropine, it may be used either in the form of drops or of ointment. Drops are certainly cleaner and in many ways preferable; the usual strength

employed is 1 per cent., and this may be applied three or four times a day, or even more frequently. If mixed with 2 per cent. cocaine the action is rather more powerful.

Atropine ointment or atropine and cocaine ointment may be used in strengths of from $\frac{1}{2}$ to 2 per cent. made up with vaseline; but this sometimes causes pain, which the drops never do.

It should never be forgotten that when using atropine to the eyes, either in the form of drops or ointment, there is a danger of producing poisoning and delirium. The first symptoms are usually dryness of the throat and skin, and occasionally a red rash. If this condition be recognized it is as well to withhold the application of the atropine until it has passed off. Although a fatal case of atropine poisoning by the application of the drug to the eye is practically unknown, yet an active delirium is frequently produced in which it may be difficult to prevent the patient doing harm to himself or any one who may be near.

If a very strong action of the drug is required, some surgeons put a small quantity of solid atropine in the conjunctival sac, but it is very likely to cause delirium.

There is one other disadvantage of atropine, and that is the liability of its causing irritation to the skin. Some skins are particularly susceptible to it, and if so much as a drop of atropine solution is put in the eye, it may cause severe swelling and oedema of the lids and face which looks more like erysipelas than anything else, and is frequently mistaken for it by those who have never seen atropine irritation. To any one who is acquainted with it the appearance is diagnostic. Oedema may be present to any degree; the skin looks as if it were moist and discharging, and sometimes is so, but on touching it

it feels dry and rough, and so characteristic to those familiar with it that it could almost be diagnosed by touch alone. It is imperative that the drug should be left off and duboisin or hyoscine substituted; but it often happens that when once atropine irritation has developed, other mydriatics keep it up. It does no real harm, for it quickly subsides when the drug is discontinued, and leaves no marks behind. I once saw it continued for weeks after the irritation appeared, in a case where it was absolutely essential to keep the pupil dilated. The patient's face became very swollen and a rash developed over the body which caused desquamation, and the appearance was very like a scarlet-fever rash; but it all subsided when the atropine was left off. If duboisin be substituted for atropine, it is better not to use it in a strength of more than 0.25 per cent., owing to its poisonous properties. Hyoscine and homatropine are far less irritating than atropine, and can often be tolerated where the other cannot.

Subconjunctival injections are now largely used, especially on the Continent, in any condition, syphilitic or otherwise, in which mercury is indicated; it is troublesome and painful to apply, and the results seen are often no better than those obtained with the more usual methods of treatment.

The ordinary irido-cyclitis, as above described, is not the only way in which syphilis affects the eye. Sometimes (and especially in cases of congenital syphilis) instead of the iris and ciliary body being the most affected, the cornea bears the brunt of the disease, and we then get the condition usually termed interstitial or parenchymatous keratitis.

INTERSTITIAL OR PARENCHYMATOUS KERATITIS

It has been previously pointed out that it is the mesoblastic structures which are particularly the prey of syphilis, so that when inflammation spreads forwards from the ciliary body, it is the iris and interstitial substance of the cornea which suffer.

This disease was known and recognized years ago, but Sir Jonathan Hutchinson was the first to point out the relation it bears to congenital syphilis.*

The disease comes on in early life, and from 5-15 is the usual age for it to develop. It is not very common, but it occurs in about 0.8 per cent. of all eye patients.† Girls are more frequently affected than boys, and both eyes are affected in about three-fourths of the cases, though there may be a longer or shorter interval before the second eye is affected. In about two-thirds of the cases there is evidence of congenital syphilis.¹ Recurrence may take place, but it is rare. Although the corneal condition is as a rule severe enough to mask all the other signs, yet if we examine a case quite early we see that in reality we are dealing with a cyclitis. In many instances, when a slight irritation of the eye is first perceptible, we are able to see small dots of *keratitis punctata* on the back of the cornea (Plate XXXIV), with some turbidity of the aqueous

* A clinical memoir on certain diseases of the eye and ear consequent on inherited syphilis, 1863.

† M. Mohr, *Pester Medizinisch-Chirurgische Presse*, 1908, gives statistics of 187 cases which occurred in his practice during eleven years, June 1897 to 1907, in which time he saw 22,013 patients. Forty-eight per cent. were boys and fifty-two per cent. were girls. Fifty-two per cent. of the cases occurred between the ages of 8-14. Many other observers have published somewhat similar figures.

and slight impairment of the movements of the pupil, which is likely to be somewhat contracted.

Keratitis punctata is rather an unfortunate term, for if a section is cut of a cornea having this condition present, the dots are seen to be composed of small collections of cells which adhere together and form little mounds, which adhere to the posterior surface of the cornea, as well as to the iris and lens capsule. Even when this is present it may happen that there is no keratitis at all, the cells simply adhering like limpets to anything they can lay hold of (Plate XXXIV). This condition is by no means distinctive of anything other than a cyclitis, and may be seen in a variety of diseases. In an ordinary case of interstitial keratitis, unless we see it early, we shall fail to recognize the dots, for with increasing inflammation they are nothing like so easy to see, as they break up and disappear in the more abundant exudation. It does not take long before the inflammation spreads forwards, and then we see what is usually described as the first stage of the disease, viz. that of infiltration. The connective tissue layers of the cornea speedily become infiltrated with small round cells and with fluid exudation. At first the infiltration appears at certain places round the corneal margin, but it rapidly invades this structure and often the whole cornea is more or less opaque and has a ground glass-like appearance. It is not often that the whole cornea is uniformly opaque, but it has a patchy appearance, with some portions denser and yellower than others. Occasionally some parts of the cornea are comparatively unaffected, but all stages are seen up to the pitch of its being so opaque that one is quite unable to see the iris at all. This stage of infiltration may last from a few weeks to several months. Long before the infiltration stage has finished the second stage of

vascularization appears. The first signs of the cornea becoming vascular show themselves early in the infiltration stage, and we thus have the vessels developing and quickly following the opacities in the cornea. These vessels are placed in the deeper layers of the interstitial substance of the cornea, and they vary immensely in their degree of development. At times they are so numerous that a 'salmon patch' is produced, and in this area the vessels may be so crowded together that, except under magnification, they cannot be seen individually. At other times they are comparatively few in number, though there are always a good many. This stage of vascularization is frequently accompanied by blepharospasm, lacrimation, and photophobia, which may remain for many months, and during the whole time the iris may be quite invisible. Sooner or later, however, the vascularity ceases to spread, and then the third stage of resolution is entered upon. The eye becomes less irritable, and a perceptible improvement is noticed. There is diminished injection, the vessels in the cornea become of a less bright colour and show signs of shrinking, and it is impossible to say when this stage really does cease, for the eye goes on improving for months and years, until at last it may become so clear that it is difficult to say that there ever has been an attack of inflammation in it at all. However, if such an eye be carefully examined with the plane mirror of an ophthalmoscope, with say a +20 lens behind it, it is always possible to see a fine network in the cornea which is really the shrunk and collapsed remains of the vessels which at one time, when the inflammation was active, were dilated and filled with blood. It is important to remember this, as it is sometimes necessary to determine whether the patient has ever had an attack of keratitis such as is here described.

It by no means always happens, however, that the eye recovers so completely as this, for we not infrequently get permanent opacities left behind, and in quite an appreciable number of cases ulceration and destruction of the cornea takes place to a greater or less degree. Sometimes the disease runs concurrently in the two eyes, but usually one eye starts a little before the other, and occasionally one sees an eye run completely through a severe attack, and then, when nearly well, precisely the same course is followed in the other eye, thus keeping the unhappy patient incapacitated for a very long time. Still more rarely, one eye only is affected.

Although this is the usual form in which we see the disease, yet it is not the only one ; and if we admit that it starts as an irido-cyclitis, and that the mesoblastic structures in the eye are those which are particularly picked out by syphilis, it is easy to see that the inflammation, instead of passing forwards into the cornea, may pass backwards into the choroid, and thus we see cases which are of essentially the same nature assuming a different form. In many of these the *keratitis punctata* is more marked, and there is severe iritis and cyclitis. The dots on the back of the cornea are larger and more numerous, and both these and the subsequent opacity of the cornea are confined chiefly, if not entirely, to a triangular patch at its lower part, the apex of which is directed upwards.² Almost invariably in these cases there are patches of disseminated choroiditis of the usual type, and there is a great tendency for the iris to become adherent to the lens capsule, and for posterior synechiae to develop, unless the pupil be kept well dilated. The choroiditis is precisely what is described under that heading, and we may get large patches which seriously interfere with the vision of the patient after recovery

from the acute attack, hence our prognosis should be guarded (Plate XXXIX).

Nearly all these cases of interstitial keratitis occur in children about the time they are cutting their second teeth, and it but seldom appears after puberty, though one does see young adults with the disease. More often than not there has been some injury immediately preceding the attack. Thus young adults are occasionally seen with typical interstitial keratitis, and the ordinary signs of congenital syphilis are present, e.g. in the teeth, the facial aspect, &c. A typical instance of this occurred in a soldier, aged 27, who had been through a campaign, and had received an injury to his eyes with some dust or gravel. He had a very severe attack of interstitial keratitis in one eye. This was hardly well before the other eye became attacked in a precisely similar manner. When the disease is seen in adults it must not be forgotten that persons suffering from acquired syphilis do also develop interstitial keratitis, though this is but rarely seen. From a pathological point of view there is no reason, as far as can be seen, why an irido-cyclitis due to acquired syphilis should not produce the disease as well as when the primary cause is congenital syphilis.

Recurrent attacks are not very frequently seen, but some observers declare that a fair number of them occur; thus Manasse found recurrence in 16 per cent. of the cases, v. Hippel in 17.25 per cent., while Sydney Stephenson,³ whose experience is unusually large in the eye diseases of children, found recurrence in 22 per cent. of his cases. This is a far higher percentage than is usually thought to be the case, and he assumes that in them the spirochaetes have remained dormant for a time in the tissues of the cornea as a sequel of the primary attack.

He also considers that recurrence is more liable to take place in those cases in which the first attack has been treated without mercury.

Pathology. It is but seldom that the opportunity occurs to enable one to examine a case of interstitial keratitis microscopically, the reason being that no eye is ever excised for this disease alone, and if such an eye is removed, it is always complicated with some other disease. Occasionally, however, it happens that an opportunity arises, and then the greatest changes are found in the deeper layers of the interstitial substance of the cornea (Plate XXXV B).

Many of the layers are packed with leucocytes, and vessels are seen running through the cornea in every direction. The whole of the cornea is somewhat thickened by infiltration and oedema, and the endothelium lining Descemet's membrane also undergoes proliferation and other changes due to inflammation. These changes extend backwards to the iris and ciliary body, though it would perhaps be more correct to say that they extended forward from the latter. Here, as in all chronic inflammations, giant cells are occasionally found. As a rule it is the deeper parts of the cornea alone which suffer, and ulceration of the surface is not often seen; but it sometimes happens, and when it does the results to the eye are indeed serious. The cornea has quite enough to do to maintain its vitality against such a severe attack of inflammation, but if in addition septic and other organisms are introduced from without, the chances of the eye recovering are remote; hence it behoves one to guard against all external injuries.

Several cases of interstitial keratitis have been recorded in children as the result of acquired syphilis. Mauthner⁴ saw a case in an infant that had contracted the disease from its

nurse. Sydney Stephenson⁵ saw it in a girl aged 12, who had suffered from a chancre of the upper eyelid when a few months old, and it is the experience of many observers that the disease has very frequently been seen to follow a chancre in the neighbourhood of the eye.

Prognosis. As a rule, eyes suffering from interstitial keratitis get well, and a fairly hopeful prognosis may be given as regards the ultimate clearing of the cornea, but a guarded prognosis should always be given as regards sight, for we can never tell what may be going on at the back of the eye. A severe choroiditis may be in progress all the time, but the cornea is far too opaque for the surgeon to be able to see it, and until it has cleared sufficiently to enable him to make an ophthalmoscopic examination doubt must exist, as it produces no pain or other symptoms by means of which it can be recognized. This may cause far greater loss of sight than the opacity of the cornea will. During an acute attack the patient is blind for all practical purposes if both eyes happen to be affected at the same time, but there is nothing more astonishing than the way in which a cornea is capable of clearing. From being as opaque as the sclerotic and riddled with blood-vessels in all directions, it may clear to such an extent that only by very careful examination with a corneal loupe or the plane mirror of an ophthalmoscope may it be possible to say that the eye has ever been affected at all. The vessels, like a very fine network, are always visible afterwards, no matter how long it is since the attack, but they are only to be seen by a very careful examination. Of course, such perfect clearance as this is by no means always realized, and more frequently than not a certain amount of permanent opacity is left, but still the cornea always clears in an astonishing manner, for

during a severe attack one would imagine that it could not possibly hold out against such odds; but unless ulceration takes place results are usually good. If blindness or semi-blindness follows an attack it is generally due to choroiditis. But if the case is untreated, blindness may occur as the result of a blocked pupil, which should not take place if atropine be used the whole time. The cornea of adults clears up quite as well as those of children, and sometimes even better.

Treatment. By far the most important thing to do in treating this disease is to use atropine from start to finish. No time should be lost in commencing this, for if only the iris can be kept dilated during the whole of the attack, a blocked pupil with secondary glaucoma is unlikely to follow.

At first the action of the atropine on the pupil will be apparent on inspection, but very soon the cornea will become so opaque that the iris will be invisible. On no account must its presence be forgotten, for if atropine is omitted grave complications are almost sure to ensue.

The tension must be carefully watched, for in spite of a deep anterior chamber, which is the rule in these cases, so much exudation may be present that the spaces of Fontana may become blocked and the tension will rise. For the relief of this pathological condition it is obvious that eserine would be worse than useless. It could not open the angle and so assist drainage, as it so efficiently does in the eye with the shallow anterior chamber of primary glaucoma, but it would increase the congestion and the pain, cause a still greater flow of albuminous material from the vessels of the ciliary body and iris, and thus, instead of relieving tension, it would increase it. In addition, it would close the pupil just at the same time as it was increasing the iritis,

and thus would assist in every conceivable way the development of a blocked pupil with partial, or perhaps total, posterior synechiae. The performance of an iridectomy would not be satisfactory in this stage, for we should be adding a traumatic iritis to the toxaemic one which already exists, and things would probably be made worse.

Treatment should be entirely directed to the cause of the tension, which is irido-cyclitis. Hot bathing and atropine are the things which must be used. Many a case of tension will be relieved in this way, but if not, paracentesis of the anterior chamber must be performed. This may be done with a broad needle. A small incision is made at the corneo-scleral junction, and as the needle is withdrawn slight pressure backwards with the blade will allow the contents of the anterior chamber to escape. It is, however, safer to use a blunt repositor for depressing the lip of the wound, as the patient may suddenly roll his eye towards it, and if the sharp needle is being held in this position there is a possible danger of wounding the lens. A more permanent way of relieving tension is to do paracentesis as recommended by Herbert, viz. by passing a Graefe's knife across the anterior chamber and making a counter-puncture with it as if an incision were being made for an iridectomy. The counter-puncture, however, is restricted to the sclerotic, and the conjunctiva is not wounded. By slightly rotating the knife the aqueous escapes partly at the puncture and partly at the counter-puncture. Severe pain may be caused if the aqueous is let out suddenly and the iris is brought into contact with the cornea. Leeches applied to the skin near the outer canthus often assist matters considerably, and one or two may be used occasionally. Much the same effect is produced by the abstraction of blood from the

skin of the temple by the 'Heurteloup' or artificial leech, when an ounce or more of blood can be abstracted quite readily.

Eyes suffering in this way should not be tied up. A shade which stands well out in front of the eyes gives relief, but nothing should be applied directly to them unless for some very special reason, such as the presence of an ulcer, &c. As regards the hot bathing, normal saline solution does as well as anything else, boracic lotion may also be used, but on no account are astringents to be applied. Zinc and alum would tend to strip off the corneal epithelium and thus remove the greatest safeguard the cornea possesses. Cocaine has precisely the same effect. Lead, from the danger of its being deposited as a dense white mass in any abraded surface of the cornea, ought to be abolished from the list of drugs which may be applied to the eye, and, in addition, it would act like other astringents in increasing the congestion and favouring the development of iritis.

As regards general treatment, mercury should be given internally, first of all because it probably has some effect even on the tertiary manifestations and on congenital syphilis, but, in addition, most inflammations of the eye are held in check by the judicious use of this drug. One of the best ways of administering it to children is to give from gr. $\frac{1}{4}$ to 1 of hyd. c. creta three times a day, to which is added gr. $\frac{1}{4}$ of powdered belladonna leaves, so as to prevent its having too much effect on the bowels. It is sometimes judicious to give iron or arsenic as well, for it not infrequently happens that a patient may get depressed and anaemic under mercury only, but if we give iron at the same time it counteracts this ill effect. Still, iron does not suit every one, and sometimes it causes

increased pain and irritation of an acutely inflamed eye. Each case must be judged on its own merits.

Exactly to what extent mercury controls the disease it is very difficult to say. Certain it is that we many times have patients with one eye affected, and for this they may have had courses of mercury extending over weeks or months, and then, when the first eye is becoming cured, the other begins to show signs of the disease; and sometimes a far worse attack develops in the second eye than in the first. Still, this is no reason for discarding mercury. We know of no other drug which does more good, nor anything like as much; therefore it should certainly be given.

It is well to give iodide of potassium in many cases. Its beneficial effect in tertiary syphilis is far too well known to require emphasizing here. Persons whose health has been shattered by a severe attack of this disease frequently do very well on syrup of the iodide of iron.

AMAUROSIS

This is one of the rarer conditions produced by syphilis. Attention is called to the eyes of young children by their aimless movements, and by the fact that the child does not take notice of lights, &c. On examination of the fundus little or nothing is seen to account for the apparent defect of vision, but it not infrequently happens that the discs appear to be paler than normal, and later on they may become definitely atrophied. Usually in these cases congenital syphilis is present and frequently there is a history of convulsions.

When this condition is seen, considerable caution should be exercised in giving a prognosis. Sometimes, no doubt, blindness does become evident as the patient grows up, though it

perhaps more often happens that such a child dies during infancy. On the other hand many children are brought to the surgeon because they take no notice of bright objects, and the pale discs suggest atrophy; yet when they get a little older the eyes take on their functions, and the vision is quite good. Probably these cases are more often due to delayed development of some part of the visual centres rather than to actual disease of the optic nerves. There is perhaps nothing more difficult than to judge accurately of the vision an eye has, or may have, when one only has the ophthalmoscopic appearance of the fundus to go by. A case of white atrophy is easy enough to recognize, but many instances are seen in which the disc may be considered pale, and yet the vision is found to be excellent; and on the other hand some cases are met with in which the discs are greyish in appearance, and the vessels not particularly small, but which really are cases of total atrophy with blindness. Therefore, in giving an opinion as to the probable vision a child has, or, what is still more important, may have when he grows up, great care should be exercised.

DISEASE OF THE LENS

The lens, being a structure developed from the epiblast, is probably never affected as the result of syphilis directly, but syphilitic subjects are distinctly more liable to cataract than are individuals who are unaffected with the disease. This, of course, is due to the fact that anything interfering with the nutrition of the eye is liable to make the lens become opaque. As syphilis so profoundly affects all the connective tissue structures within the eye, and especially the ciliary body which presides over its nutrition, it stands to reason that all ocular

structures must suffer, and thus the lens at times becomes diseased.

There is no form of cataract, either congenital or acquired, which can be looked upon as of a purely syphilitic nature, though there is little doubt that many of the cases of congenital cataract seen in children, the subjects of inherited syphilis, are indirectly due to the disease, while it is not at all difficult to imagine a senile cataract developing as the result of malnutrition in an eye which has had iritis or choroiditis or other manifestations of syphilis. On account of the frequency with which fundus diseases are met with in these cases, great care should be exercised in examining the eye, so as to ascertain as far as possible whether or no such disease exists, and a guarded prognosis should always be given. It is extremely likely that such eyes may have a fluid, and more or less opaque vitreous; there may be large patches of choroiditis, which, although the operation may do quite well from a surgical point of view, yet may quite prevent the eye from seeing any better after it than before. The field and projection of light of all such cases should be gone into most carefully, but too much reliance should not be placed on good or bad projection.

The great liability to the loss of vitreous during the operation, in cases in which this structure is fluid and diseased, must be borne in mind.

OCULAR MUSCLES

Paralysis of one or more ocular muscles is frequently caused by syphilis.

Aetiology. There are many ways in which this can arise. A destructive nuclear lesion such as would be produced by a gumma growing in its region might cause total ophthalmo-

plegia. A syphilitic thickening of the meninges around the nerve would press on it, and thus cause paralysis of the muscle or muscles it supplies, and such pressure is more likely to occur in the cavernous sinus or in the sphenoidal fissure. Syphilitic endarteritis may also cause obliteration of the vessels supplying that portion of the brain from which these nerves arise, with the result that their function is impaired or lost.

Symptoms. The first symptom from which a patient complains who has paralysis of a muscle is diplopia, and on examining the eyes there is most likely an obvious squint. If one of the muscles is only weakened in its action, it may be sufficient to prevent the two eyes working harmoniously together, the result being that they do not maintain exactly the proper position with regard to each other, and again diplopia is produced. It will probably be seen that when the eyes are turned towards the side on which the weak muscle is present, the affected eye does not move as quickly or as completely as the other, and it may show some irregular movements when the effort is made. If the third nerve is the affected one, the ciliary muscle and iris will very likely be paralysed as well, in which case the pupil will be semi-dilated and inactive, and there will be paralysis of accommodation.

Diagnosis. There is nothing very complicated about this, and it is made still easier by the history and the absence of anything other than syphilis to account for the condition. Diplopia is the chief symptom of which the patient complains.

Prognosis. This is decidedly good, and most cases yield to treatment fairly quickly. Although the lesion may be a severe one, such as a gumma in the brain, which may have a fatal termination, yet, as a rule, the damage to the nerve takes place along its course ; and when the syphilitic thicken-

ing which is causing the trouble becomes absorbed, gradually the muscles regain their power and the diplopia vanishes. Occasionally the paralysis is permanent, and particularly if it is the result of a large and serious lesion.

Treatment. No local treatment is of the least use. Inunctions of mercury and the administration of large and increasing doses of iodide of potassium are the two chief things to rely upon. Under this treatment, in favourable cases, the nerve regains its function and paresis and diplopia quickly disappear. Often patients find it necessary to cover up one eye in order to obviate the very troublesome diplopia which makes them misjudge their distances, and is a great source of danger and annoyance to them.

DACRYOADENITIS OR INFLAMMATION OF THE LACRIMAL GLAND is not infrequently of syphilitic origin, and many observers are inclined to think that most of the cases met with are of this nature. It is recognized by a swelling in the neighbourhood of the lacrimal gland, which comes forward and spreads over the upper surface of the eyeball. Often the swelling is quiet, with little or no sign of redness. There may or may not be pain, but if the swelling is at all large it will tend to displace the eyeball and perhaps produce diplopia. If present for a long time it may by pressure paralyse the supra-orbital nerve, or produce neuralgia in it. It is a tertiary manifestation of the disease and is frequently bilateral. If the inflammation is acute it may lead to the formation of an abscess, though this is not so very common in the syphilitic cases. It is well to remember that a syphilitic periostitis spreading to the gland and pushing it forwards may produce much the same symptoms.

Treatment. This consists, as usual, of giving mercury and iodide of potassium. A mercurial ointment such as oleate of mercury 10 per cent. may be rubbed in over the swelling and into the surrounding skin. If an abscess forms it must be treated on ordinary surgical principles.

SYPHILITIC RETINITIS

usually occurs during secondary syphilis, and may occur apart from choroiditis, which is the most common condition.

Symptoms. Any part of the retina may be affected, but the macula, the optic nerve, and the parts about this are most frequently the seat of the trouble. Not uncommonly the inflammation follows the course of the larger of the retinal vessels, and syphilitic endarteritis is a prominent sign, though retinal haemorrhages are far less frequent than in cases of albuminuric retinitis, though they sometimes occur. The deeper parts of the vitreous become affected, and fine dust-like opacities are frequently seen; sometimes also much larger opacities develop. This gives rise to haze of the vitreous, through which the optic disc is seen, and thus the edges will look blurred and indistinct and will have the appearance at first sight of papillitis when such may not exist, although it is extremely likely to be present under these conditions. Failure of vision, from the very nature of the affection, is of course a marked symptom, and one which is present very early in the disease, and not infrequently goes on to blindness. The sight is excessively foggy, especially at night time and in dull lights, far more so than in many other conditions in which more marked ophthalmoscopic changes are present. One eye is usually affected before the other, but both generally get involved unless treatment is successful.

Diagnosis. Such a condition as above described must almost of necessity be due to syphilis, and the history will in all probability settle it. Should any doubt exist as to its nature it is far safer to treat it as if it were syphilitic. Care should of course be taken to exclude the possibility of renal disease being the cause of the trouble, in view of the fact that severe mercurial poisoning may occur in patients with kidney disease if this drug be given.

Treatment. A vigorous course of antisyphilitic treatment must be at once commenced. No time should be lost ; in this condition the disease is centred upon the most delicate part of the whole of the visual mechanism, and unless it be quickly subdued, loss of the whole or the greater part of the sight is very likely to occur. Usually it appears during the first two years after the disease has been contracted, and often during the first two months ; therefore no effort should be spared to get the patient fully under mercury immediately, and then there is a fair prospect of saving his sight. If neglected, and especially if the patient is poor and living under bad hygienic conditions, blindness is by no means unlikely to occur. In addition to the general treatment the eye should be kept quiet by the use of atropine, and well-darkened glasses should be worn in order to prevent the stimulation of the inflamed retina with more light than is necessary.

Syphilitic retinitis is sometimes seen in congenital syphilis. On ophthalmoscopic examination a fine pigmented deposit is seen at the periphery of the retina, and in more marked cases larger brown or black spots are visible ; but these are more akin to the choroido-retinitis which often accompanies an attack of interstitial keratitis.

RETINITIS PROLIFERANS

This is a rare disease, and although it occurs in patients who have suffered from syphilis, and sometimes follows syphilitic retinitis, yet it is by no means always of this origin and may be seen as a complication of other conditions. Its aetiology is obscure, except of course in the cases due to syphilis. Connective tissue develops in the retina and vitreous, into which blood-vessels penetrate, and at times haemorrhages are seen. It usually appears at the posterior pole of the eye and is sharply cut off from the surrounding tissues. The vision is greatly impaired, and may be almost completely lost. The new-formed tissue, by growing and contracting, tends to pucker and detach the remaining retina. In the syphilitic cases endarteritis is present, and a change in the vessels may to a great extent account for the development of this peculiar condition.

Treatment. Nothing can be done locally, but the disease must be treated generally. Subconjunctival injections have been tried, as they have for all and sundry eye conditions, but such treatment is not likely to cause the disappearance of these large connective tissue bands.

RETINITIS PIGMENTOSA

has been stated by some to be caused by syphilis, but this is not generally accepted and has probably little or nothing to do with the disease, and so it need not be here described.

CHRONIC SUPPURATIVE CHOROIDITIS

is sometimes seen in children suffering from hereditary syphilis, though many cases are seen in those who have no such condition. The disease starts as a choroiditis with exudation,

and quickly involves the optic nerve, the retina, and the whole of the uveal tract. Purulent material quickly gets poured out into the vitreous and leads to the development of organized tissue, so that, on looking into the eye, it has the appearance of containing a growth. Some of these cases so closely resemble an eye containing a glioma that the term pseudo-glioma is frequently applied. The tension is generally low, and there is retraction of the iris at the angle of the anterior chamber. Such eyes are usually found to have total detachment of the retina, with jelly-like albuminous material in the subretinal space. If left, the eye shrinks and is in any case totally blind.

Treatment. If doubt is felt as to whether the condition present is really a glioma (and in some cases it is impossible to be certain), the proper treatment is to excise the eye. Should it subsequently be found to be a pseudo-glioma, due to suppurative choroiditis, no harm whatever is done; at the worst a totally blind and useless eye has been removed, and one which would shrink and probably become painful; and for either of these conditions excision would become inevitable, whereas if the other mistake were made and a glioma were left, all chance of saving the patient's life by enucleation of the eyeball would be lost.

THROMBOSIS OF THE CENTRAL VEIN OF THE RETINA

is said to occur as the result of syphilis, and it has been described in children who are the subjects of congenital syphilis. When it is seen it is nearly always in elderly people who are suffering from renal or cardiac disease or general arterio-sclerosis. Any of these conditions may be indirectly due to syphilis, but probably one or other of them is the actual cause of the thrombosis.

Treatment. This must be directed to the kidneys or heart, or whatever has been found to be the cause of the altered vascular condition.

PAPILLITIS OR INFLAMMATION OF THE OPTIC NERVE HEAD is a condition which is most frequently caused by intracranial disease, such as a cerebral or cerebellar tumour. Gummata frequently develop inside the skull, and are very likely to produce optic neuritis ; a meningitis of syphilitic origin is likewise a cause of this condition.

Diagnosis. There is nothing distinctive in the symptoms of a gumma of the brain from that of any other intracranial growth. When symptoms of such appear and there is a history of syphilis, the chances are that it is either a gumma or a meningitis of similar origin ; but the diagnosis cannot be rendered certain until antisymphilitic treatment is adopted, and then it is simplicity itself. If the symptoms subside, and there is evidence of the growth and of the meningitis subsiding also, syphilis is almost certainly the cause. If it fails, the chances are that the papillitis and other symptoms have been caused by a malignant or tubercular growth, though some cases of syphilitic origin never improve.

Prognosis. The prognosis in any cases of optic neuritis is bad. It sometimes happens that the inflammation subsides, but it nearly always leaves a damaged nerve. The vision is likely to be permanently affected, and most cases in which the neuritis is severe go on to partial or complete optic atrophy, and many of these eyes are left absolutely blind in spite of the fact that the pressure and other symptoms of the tumour have subsided, and in all probability the growth has disappeared or has left only a scarred and puckered patch where it once was situated. Even a gumma may sometimes, in spite of all

treatment, end fatally. There is no telling where it may grow, in fact it may develop anywhere within the skull or spinal cord, and produce anything in the way of symptoms from transient ocular and general symptoms to permanent and hopeless paralysis, loss of intellect, and death, while blindness is perhaps the most common symptom of all.

Treatment. The treatment for this differs in no particular from that of a gumma elsewhere. Iodide and mercury must be given.

When optic neuritis is present, there is usually increased intracranial pressure, and in order to relieve this and to prevent the patient going blind from subsequent atrophy, the operation of craniectomy has been done; this consists of the removal of a portion of the vault of the skull in order to allow the meninges to bulge and thus reduce the intracranial pressure. This does hold out some hope of relief to the optic nerves, which may thereby be prevented from becoming totally atrophied.

CHOROIDITIS

The choroid being a structure derived from the mesoblast is particularly prone to inflammation in patients suffering from syphilis, and although it is more frequently involved from extension backwards from the ciliary body, yet it sometimes becomes primarily affected, and may of course lead to serious loss of vision.

Owing to the fact that the choroid and retina are so near each other, it is hardly possible to imagine there being choroiditis present without the retina being involved to a greater or less extent; but in such cases this is secondary, and therefore we shall consider choroiditis apart from retinitis, which is described by itself and is really a different condition altogether.

Choroiditis may be exudative or suppurative, and it is the former condition which now merits attention, the latter having been discussed previously.

Aetiology. Syphilis is one of the most potent causes of choroiditis, and accounts for far more cases than all the other diseases which produce it put together. It occurs both in children and adults, and has also been observed immediately after birth, as well as in stillborn babies. In children it frequently follows a syphilitic irido-cyclitis, the inflammation usually spreading forwards and giving rise to the disease which is so well known as interstitial keratitis, but sometimes travelling backwards and then producing a plastic choroiditis. In another variety of case it may occur alone during the first three years of life. In adults it does much the same as in children, but it often happens that choroiditis develops without any corneal complication, and possibly also without there being any sign of irido-cyclitis. It most frequently commences during the first or second years after the primary infection. One sometimes sees it develop in patients several years after infection, and one has known a case in which one eye became practically lost from choroiditis shortly after infection, then six or seven years later exudation occurred near the macula in the other eye and spread almost all over the choroid, but as the macula region escaped, central vision was retained.

Symptoms. This form of choroiditis assumes the exudative form, and foci of inflammation appear scattered all over the choroid. At first they have a yellowish appearance with indistinct edges, and they can be seen to be beneath the retinal vessels; the red reflex is here hidden and the surrounding parts have a veiled and semi-opaque appearance (Plates XXXVIII and XL). After a time the appearances change by absorption of the inflammatory products, and then the

permanent changes begin to be visible (Plates [XLI, XLII]. There has been much disturbance of pigment, with the result that we see usually a white area, which is the sclerotic showing through the atrophied choroid which has become cicatricial, with its structure more or less destroyed. The edges gradually become sharply cut, though very irregular, and dense black pigment is often arranged in irregular heaps round the margin of the atrophic patch; but all stages are seen between the normal choroid and the atrophic patch through which the sclera is so easily seen. Scar tissue in other places can be readily made out, and very often pigment can be seen scattered irregularly over the patch (Plates XXXIX, XLI, XLII, XLIII). It has previously been pointed out how readily the retina may become affected by being closely in contact with the inflamed choroid, and may, and generally does, give rise to a choroido-retinitis (Plate XLIV). The inflammation may not, however, stop here, but is found at times to pass through the retina into the vitreous; thus we nearly always see vitreous opacities whenever we have anything like a severe attack of choroiditis. So frequently is this the case, that the presence of fine floating opacities in the vitreous should always make one suspicious of an affection of the uveal track, and a careful ophthalmoscopic examination is very likely to reveal the presence of some patches of choroiditis.

It can readily be seen how profoundly the vision may become affected in these cases, for it is impossible to retain good sight if the retina and choroid are diseased, and, indeed, it is usually the failure of vision which first leads patients to realize that all is not right with the sight. Sometimes they complain of a fog before their eyes, and all objects appear as if seen through a veil. At other times there is a scotoma present at or near the macula. This quickly calls the patient's

attention to the eye, for there is very likely a more or less irregular-shaped dark or black spot visible whenever the eye is directed to any particular object. Sometimes it is central, at other times it is seen to occupy a position near to the spot on which the eye is directed. If the patches are more peripherally situated, their presence may not be so obvious to the patient; but of course scotomata correspond to all these inflammatory areas, and can be mapped out more or less accurately on a perimeter. The retina is elevated at these patches, and so it may appear that the eye has become somewhat suddenly hypermetropic if the macula be raised. Owing also to the irregularity in surface of the retina, straight lines may appear to be distorted, and the estimation of the size of objects may be at fault. The irritation of the retina, which it is obvious must occur, gives rise to the subjective sensations of light, flashes, &c. After a time these subside and the permanent damage in the field of vision can be made out. The severity of the symptoms to which they give rise is altogether dependent upon the size and position of the patches, and varies from total loss of central vision to a condition which is so slight as to be totally disregarded by the patient.

All these changes take a considerable time to run through their various phases, and more or less permanent damage is invariably the result. The vitreous may or may not clear, but usually it does so to a great extent, though some permanent opacities are more than likely to be left. According to the severity of the choroiditis, so will the retina and choroid show a greater or less degree of permanent damage, while recurrences are very frequently met with; so that we may see an eye which is badly scarred from old disease developing fresh patches (Plates XXXVI and XXXVII).

Treatment. It is obvious that after permanent scarring has taken place no treatment will be of any avail, for the choroid and adjacent retina will by that time have been destroyed. A great deal, however, may be done both to prevent its occurrence, and to limit its destructive influence when once it has started. The most important factor lies in the treatment of the constitutional disease by general methods, for after all this condition is only one of many symptoms which syphilis produces, and nothing more need be said under this head.

Locally, atropine should be used, and dark glasses worn, much as in cases of iritis or other deep-seated inflammations of the eye. Oleate of mercury may be applied to the temples and brows, leeches are certainly useful, while counter-irritation in the form of blisters to the temples are thought by some to be efficacious. Subconjunctival injections of cyanide of mercury are advocated by others, but it is doubtful if it produces much more effect upon the eye than mercury administered by the more usual and less complicated methods, although some observers are greatly impressed by its utility.

GUMMA OF THE CHOROID

is certainly rare, though by no means unknown. Usually it starts in the region of the ciliary body or iris, and the choroid may become involved by extension. Unless it is far forward it is very likely not to be seen at all until the eye is examined after removal.

DISEASES OF THE SCLERA

It is hardly possible to imagine a severe irido-cyclitis which is so often a syphilitic manifestation without at the same time having a scleritis. Many cases of deep scleritis are of syphilitic origin, and it is most frequently met with in young people after puberty, as the result of congenital syphilis.

The sclera shows a deep bluish-red injection over the affected area, and this infiltrated region soon becomes thinned and stretched, and then assumes a peculiar bluish aspect with a fine transparent appearance not unlike porcelain. According to the severity of the disease so the patch extends, or remains much the same, but usually it leads to considerable bulging, until the sclera may be reduced to the thinness of tissue paper. This usually takes place about the ciliary region, and as the cornea has almost always suffered from a severe keratitis, it also bulges until we get a large staphyloma with enormous elongation of the eyeball in the antero-posterior direction and in extreme cases the eyelids are unable to meet over it. Usually by this time the eye is blind, and more frequently than not both eyes are affected.

In such cases the anatomical characteristics are much the same as those seen in interstitial keratitis, the sclera becomes more and more infiltrated with inflammatory material, and as this softens the dense connective tissue of the sclera, so it bulges as the result of the intra-ocular tension.

Such eyes are from their prominent position, and from the thinness of their walls, particularly liable to injury, and a person blind from this cause is very likely to rupture the eye by an accidental blow. It is far better to remove these blind and staphylomatous eyes, as they are not only useless but also unsightly and frequently painful.

GUMMA OF THE SCLERA

It sometimes happens that a considerable thickening of the sclera takes place instead of the thinning previously mentioned, and thus we may have a gumma developing. The sclera being composed of fibrous tissue is a structure which we should expect to be affected in syphilis.

The patches of episcleritis are really nothing more or less than gummatous infiltrations of the sclera and episcleral tissues (Plate XXIVA) ; but they are not usually known as gummata, though the nature of the two conditions is identical. It is very rare to find a gumma of large size growing in the sclera, without involving the ciliary body, but such has been known to occur.

Diagnosis. This is not as a rule difficult, although a gumma of the iris and ciliary body involving the sclera may resemble a malignant growth. Generally the history, and the fact of there being other syphilitic lesions present, is sufficient to suggest the true nature of the case, while the rapid response to antisyphilitic treatment will quickly put the diagnosis at rest.

Prognosis. The prognosis depends entirely upon the amount of damage which has been done inside the eye, and each case must be judged on its own merits. If there is only a slight gummatous infiltration of the sclera and episcleral tissues, no great harm may result. If, however, a large mass which invades the ciliary body, iris and sclera, is present, it is unlikely that even after it is absorbed the vision will be good, though if the vitreous clears (and it is sure to be affected) and the damage to the surrounding structures is not great, useful vision may be retained.

Treatment. The treatment for this condition is identical with the treatment of tertiary syphilis wherever it is manifest, that is, iodide of potassium internally with or without mercury. Locally hot bathing and atropine should be applied, and oleate of mercury or blue ointment may be rubbed into the temples.

THE SPIROCHAETE PALLIDA

With regard to this organism, which at the present time is almost universally considered to be the specific germ of syphilis, it is not necessary to go into the various experiments

which have been conducted to prove that syphilis is really caused by it ; that is considered elsewhere (vol. i, pp. 43-104).

What, however, we are concerned with is the rôle which it plays in diseases of the eye.

A considerable amount of work has been done with special reference to eye diseases.

Sydney Stephenson⁶ was the first to demonstrate the organism in the human eye. He found it in two cases of keratomalacia in syphilitic infants aged respectively 7 weeks and 9 months. The clinical evidence of syphilis was conclusive. He smeared cover-glasses with material scraped from the diseased cornea and treated it by Giemsa's method, and then found some corkscrew-like organisms which stained a rose colour.

Bab⁷ found spirochaetes present in the eyes of three syphilitic stillborn children. In one case the substantia propria of the cornea contained them in large numbers, and they were especially abundant near Descemet's membrane. Most of the organisms were arranged parallel to the direction of the corneal lamellae. Some were present in the iris, and there were large numbers in the choroid. They were not present in the ciliary processes, ocular muscles, or lens. The tissues in which they were found showed no signs of inflammation, and the vessel walls were normal.

In another case of a macerated foetus spirochaetes were found in the choroid and sclerotic, while in a third case he found spirochaetes in the optic nerve in the neighbourhood of the central veins and artery, in the connective tissue septa, and in the retinal vessels in their immediate vicinity ; the vitreous and lens were free from them.

Schlimpert⁸ found spirochaetes present by the silver impregnation method. In the case of a macerated foetus of 4 months he found no macroscopic lesions present in the eye,

but microscopically there was infiltration of the cornea, the choroidal vessels were dilated, and haemorrhages and cellular infiltrations were present. Spirochaetes were found in a vessel of the conjunctival cul-de-sac, and also in the cornea near Descemet's membrane. The choroid contained most of them, and isolated organisms were seen in the inner granular layer of the retina and in most of the other structures of the eyeball.

In another foetus, which had also marked signs of congenital syphilis, spirochaetes were found in large numbers in the viscera. The choroid was thickened, the vessels were much thickened, and there was cellular infiltration accompanying it. Many spirochaetes were found, chiefly collected together near the vessels. There were very few seen in the retina, and none were present in the optic nerve. The muscle and orbital tissues contained large numbers.

Other investigators have found the *Spirochaete pallida* in other parts of the eye. Zur Nedden⁹ found them in the aqueous in a case of acute iritis. Bab⁷ states that they exist in large numbers in the deeper layers of the cornea in children the subjects of inherited syphilis.

Experimental evidence tends to show them capable of producing certain ocular lesions. Bertarelli¹⁰ injected matter from a primary sore into the anterior chamber of a rabbit and fourteen days later he was able to show by the silver-staining method that spirochaetes were present between the normal and infiltrated portions of the cornea; but he found none that he could see in the iris. After infecting one cornea from another the virulence increased and symptoms of syphilis developed in anthropoid apes after inoculation, and finally the organisms were found to be pathogenic for guinea-pigs.

Greeff and Clausen¹¹ scarified the iris with the needle used for inoculating the eye, they rubbed syphilitic material into

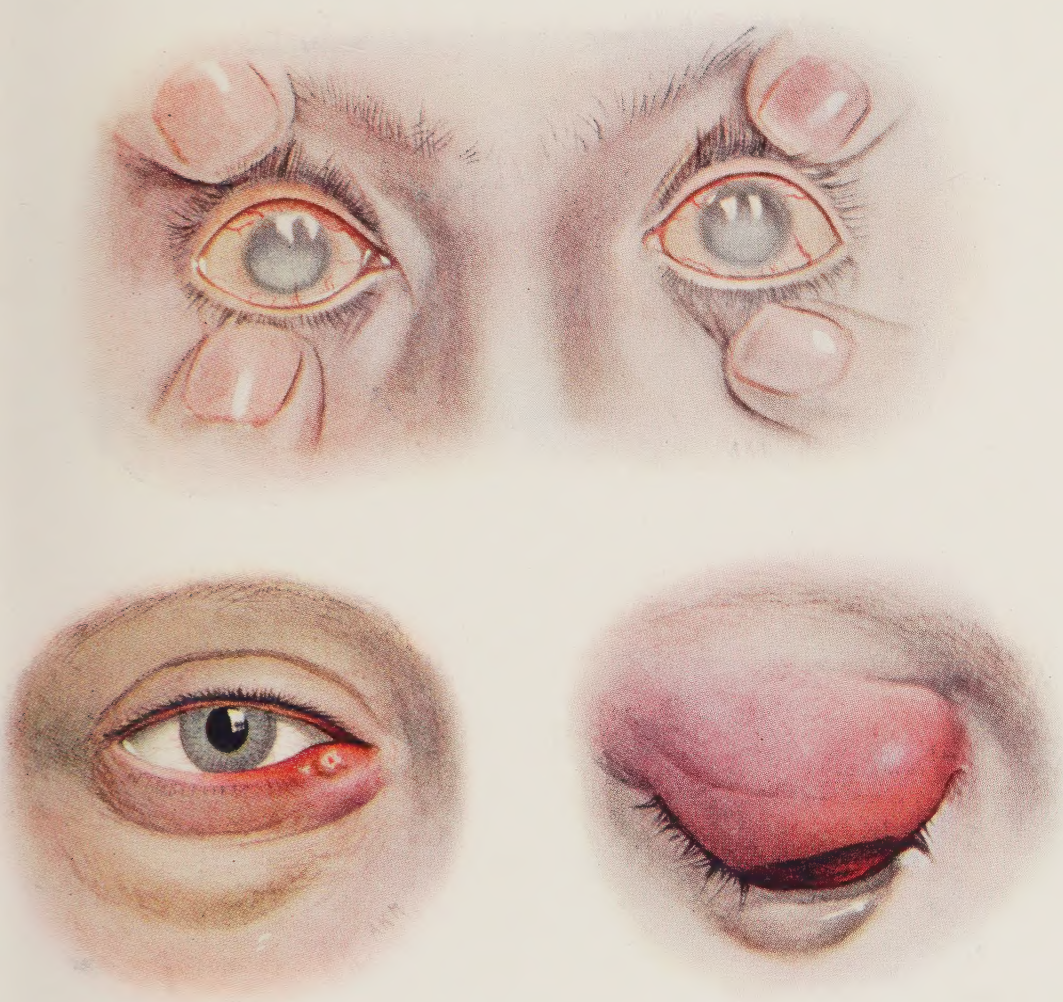
surface abrasions of the corneal epithelium, and introduced small portions of buboes into the anterior chamber. The latter method caused a perforating ulcer of the cornea, while in the two former experiments numerous spirochaetes were found in the cornea, which certainly proved the fact that the organisms developed *in situ*, and were not only the ones which were originally inoculated. It is thus manifest that rabbits' eyes can be infected with syphilitic material.

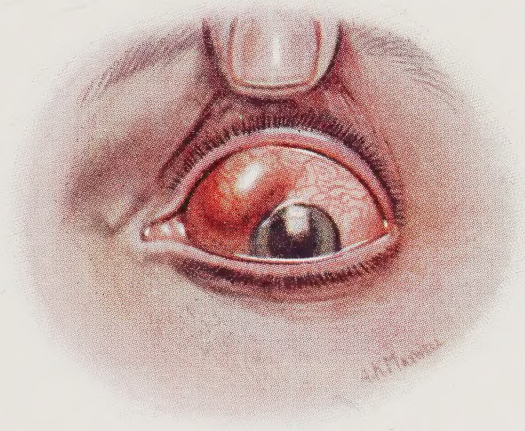
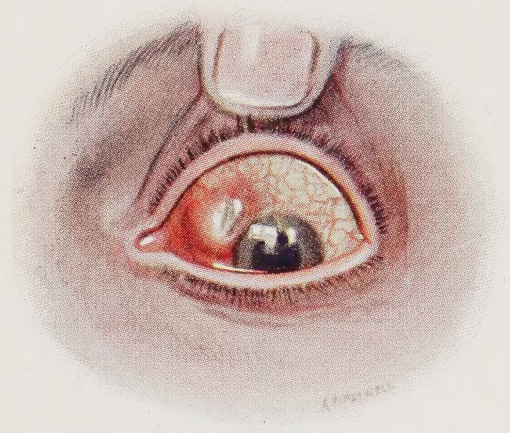
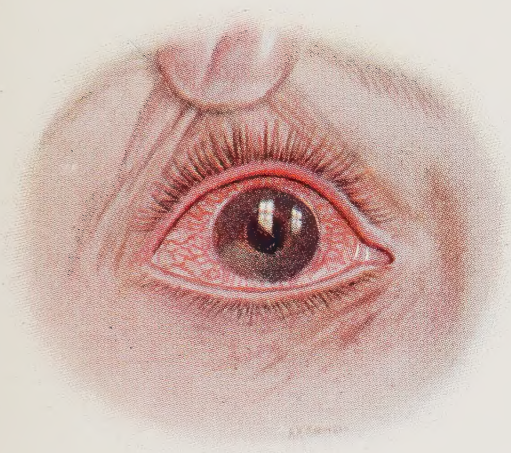
Our knowledge of syphilis is likely ere long to be considerably enhanced owing to the fact that positive experiments are now possible, and it has been proved beyond doubt that inoculations can be successfully carried out in apes, while the skin, the eyes, and the lid margins, as well as the genitals, are particularly suitable for inoculation. In from two to seven weeks a hard sore develops, followed by secondary symptoms.

C. Duvareux Marshall

BIBLIOGRAPHY

1. Sydney Stephenson. The Ophthalmoscope, vol. vii.
2. W. A. Brailey. Iritis of the later stages of syphilis, Trans. Ophth. Soc., vol. xv.
3. Sydney Stephenson. Medical Press and Circular, 1907.
4. Mauthner. Zeissl's Lehrbuch der Syphilis.
5. Sydney Stephenson. The Ophthalmoscope, vol. i, 1903.
6. — *ibid.*, March, 1907.
7. Bab, H., Deutsche Med. Wochenschr., Nov. 1906.
8. H. Schlimpert, Deutsche Med. Wochenschr., Nov. 1906.
9. Zur Nedden, Bericht der Ophthal. Gesellschaft Heidelberg, 1906.
10. Bertarelli, Presse Médicale, Aug. 1906.
11. Greeff and Clausen, Bericht der Ophthal. Gesellschaft Heidelberg, 1906. Deutsche Med. Wochenschrift, Sept. 1906.





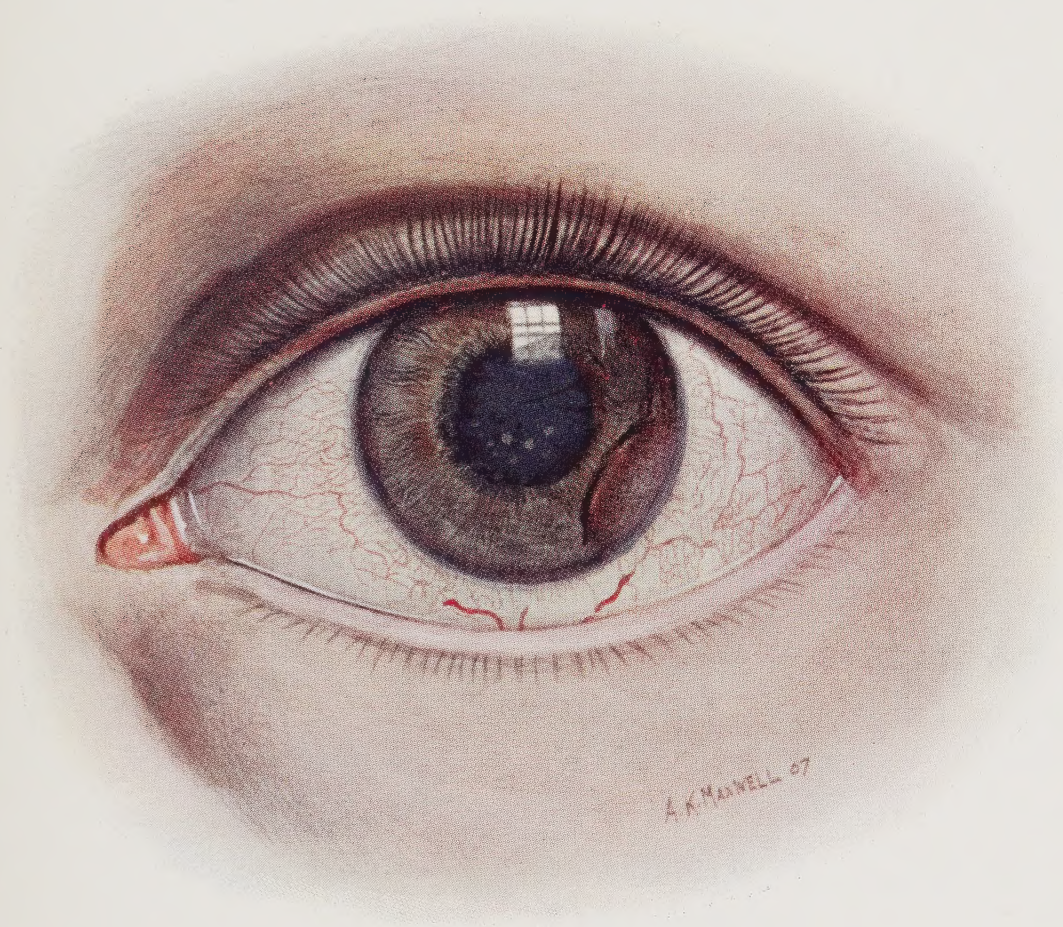
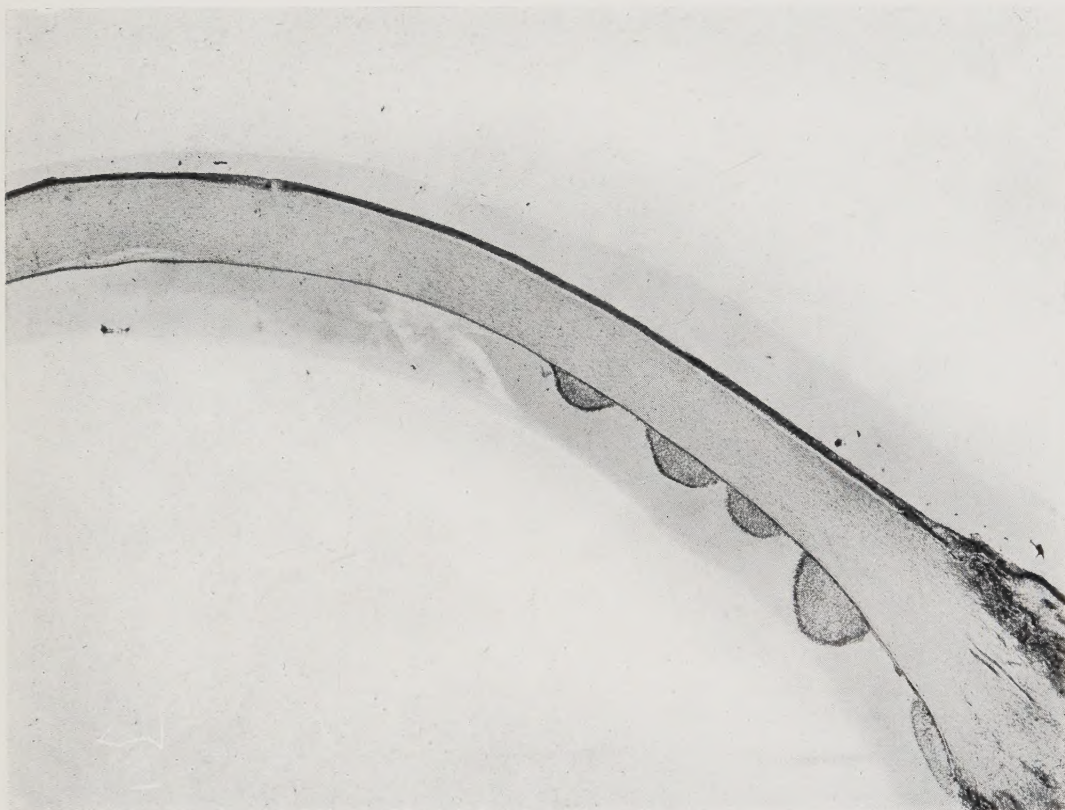


PLATE XXXIV

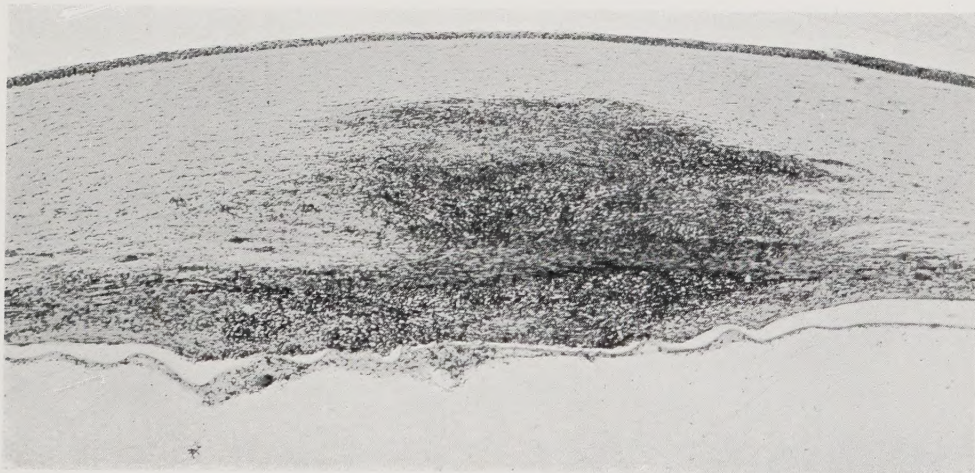


Keratitis punctata. Section of the cornea, showing dots of keratitis punctata on Descemet's membrane.

PLATE XXXV



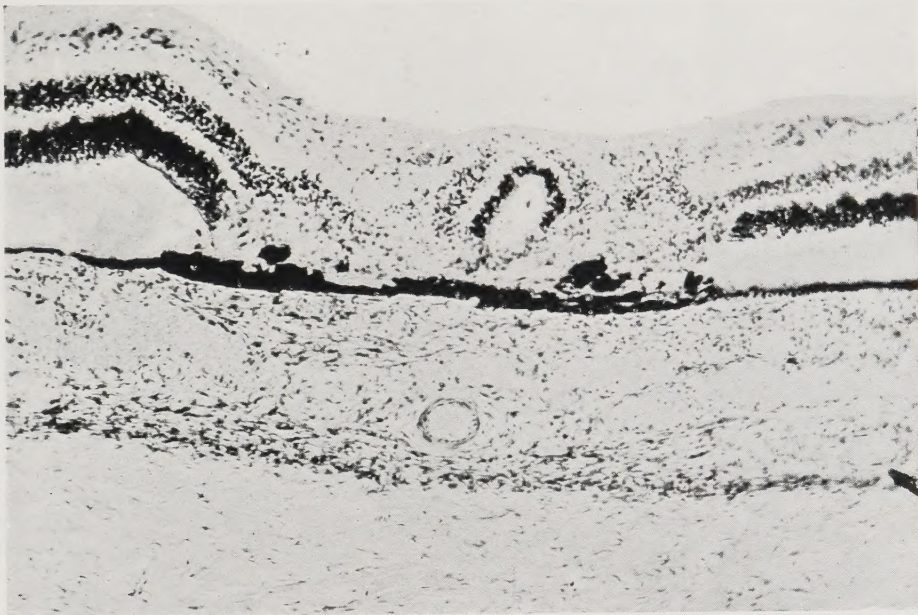
A



B

- A. Syphilitic infiltration of sclera.
B. Interstitial keratitis. Section through cornea.

PLATE XXXVI



A



B

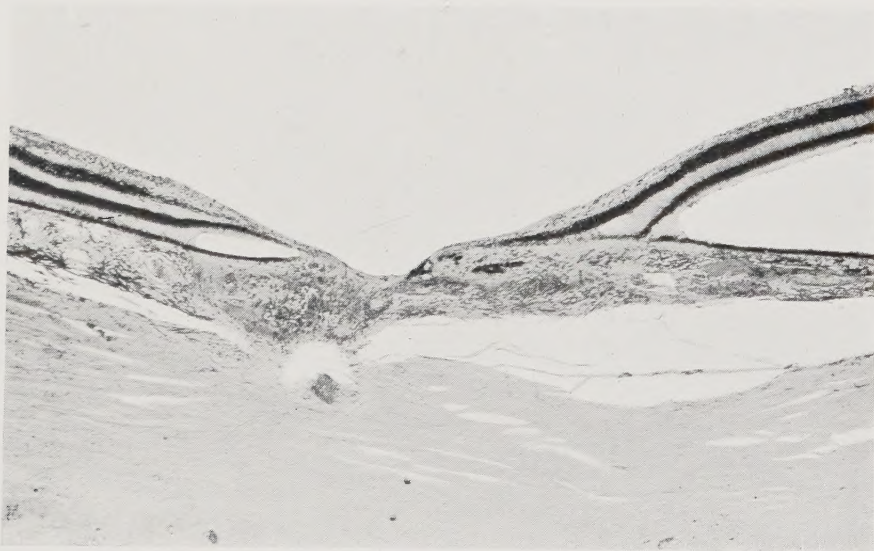
A. Patch of disseminated choroiditis. Retina and choroid adherent.

B. Patch of recent anterior choroido-retinitis.

PLATE XXXVII



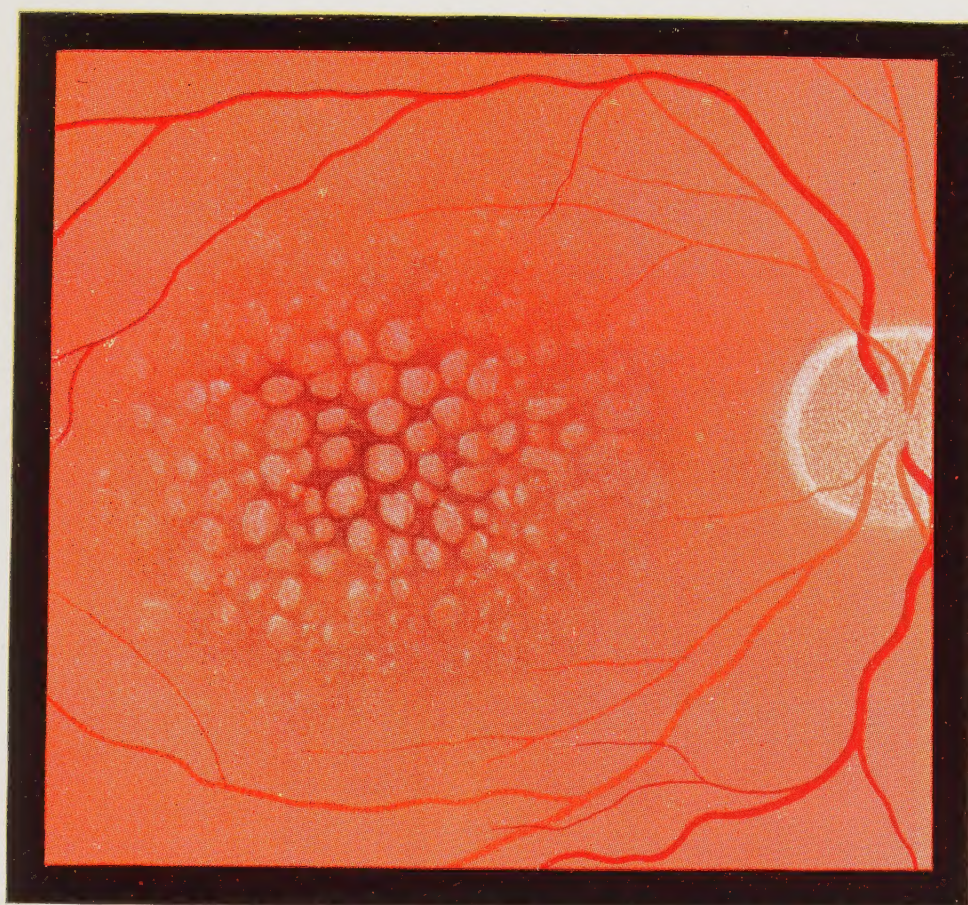
A

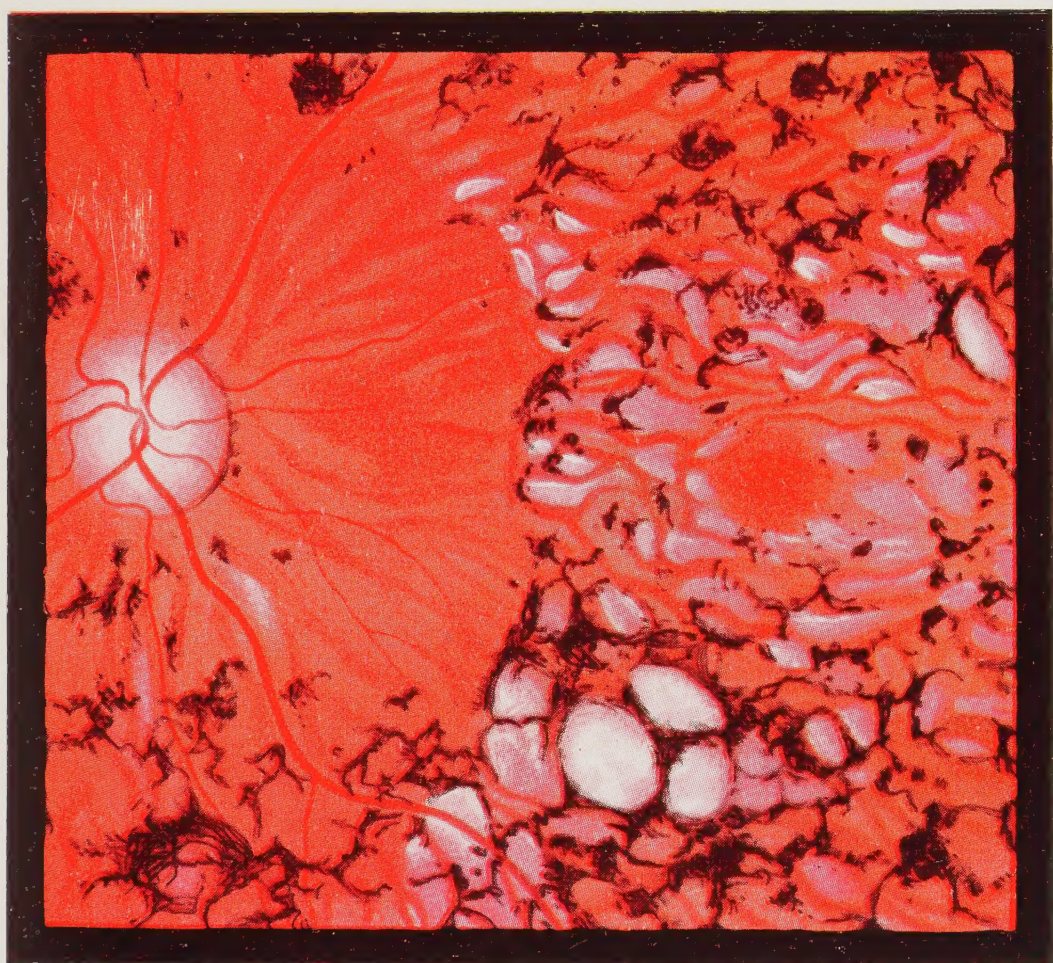


B

A. Disseminated choroiditis.

B. Patch of choroido-retinitis, both structures much atrophied.

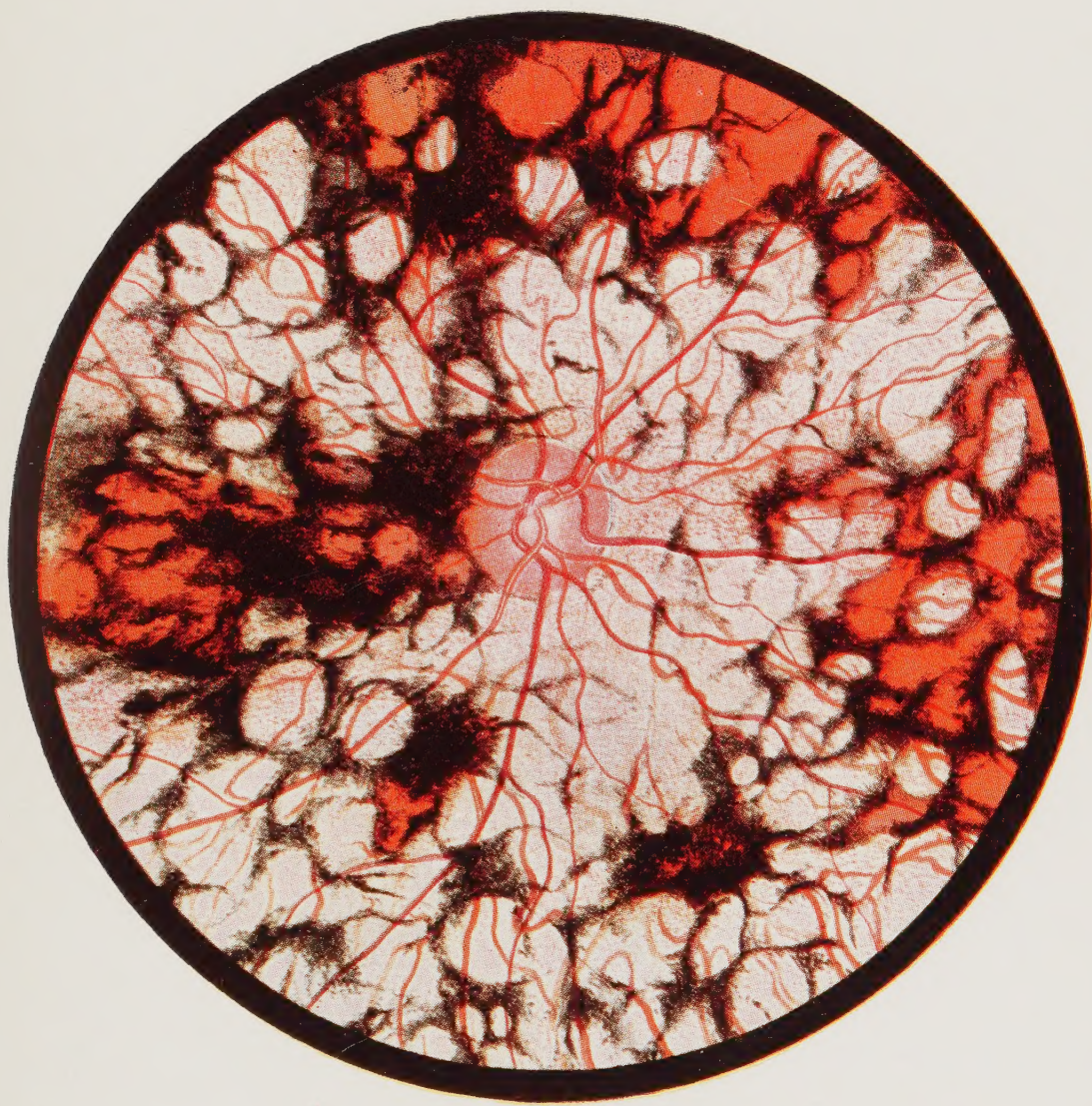














AURAL SYPHILIS

BY

C. ERNEST WEST, F.R.C.S.

CHAPTER XIII

INTRODUCTORY

THE importance of syphilis as a cause of diseases of the ear was only recognized about fifty years ago, at a time when the study of the diseases of the special sense organs was beginning to excite more methodical attention than had previously been their share. Since that time the subject has been placed on a fairly satisfactory pathological basis, though much still remains to be done in this direction with modern methods of histological research. The treatment of syphilitic diseases of hearing still remains in a most unsatisfactory position. This has resulted from the extreme intractability of the conditions, even in their onset, from the painless and in some cases insidious progress of the changes in the labyrinth, and from the nature of these changes, in their essence irremediable when once established.

The treatment of syphilis of the ear is practically in the same position which it occupied ten or fifteen years ago, in spite of the immense advances which have characterized aural surgery in general during this period. There can, however, be little doubt that the more methodical treatment of syphilis, both acquired and congenital, has resulted in the diminution of the frequency of specific affections of hearing, particularly of the deafness of acquired syphilis.

Syphilis may attack all parts of the hearing organ, from the pinna to the auditory nuclei. While the affections of the

superficial parts are of interest, and may occasionally present difficulties of diagnosis, they form no more than a topical department of syphilitic disease of the cutaneous and connective tissue structures, and have no special bearing on the sense of hearing. On the other hand the specific affections of the labyrinth and auditory nerve are of importance, because they can only be diagnosed by special methods and lead immediately to grave and permanent impairment of hearing power. It is in the direction of prophylaxis against involvement of the labyrinth in known cases of syphilis, and especially in the congenital cases, that we can hope for improvement in the treatment of syphilis of the ear. As will be emphasized later, the majority of affections of the labyrinth in congenital syphilitics are preceded by interstitial keratitis ; and it is a comment on our impotence to affect materially the course of the disease that in many cases the hearing becomes impaired and is rapidly lost during the course of special antisymphilitic treatment of the eye-condition. This is the more lamentable because the keratitis is in many cases capable of so far clearing up as to leave the patient with useful vision, while useful hearing is rarely saved when once the labyrinth has become involved. If, in all cases of interstitial keratitis, some effective measures could be taken to safeguard the ear from attack, the problem of congenital syphilitic deafness would be substantially solved for the next generation.

Historical. The earliest notice of the occurrence of syphilitic deafness which I have been able to find is by Feichtmann,⁹ in 1857. Following this came Hutchinson and Jackson's⁹¹ paper, published in 1861, on ' Nervous Deafness in Hereditary Syphilis '. It is interesting to find that in this pioneer paper the true nature of the disease was correctly apprehended as

being due to changes more deeply seated than the middle ear. Among the earlier writers on the subject were Pagenstecher, Hinton, Wreden, von Troeltsch, Wilde, and Schwartz; to the last we owe the first review of the literature of the subject in 1869. Ten years later some confusion was introduced into our knowledge of the subject by Sexton¹⁸ in America, who maintained that the deafness of syphilis was due to changes in the middle ear, in the face of pathological evidence of the existence of definite and easily demonstrable changes in the labyrinth. Sexton's contentions were supported by citations of observations made by Sir William Wilde on 'Syphilitic Myringitis,' a condition which would appear from his descriptions, which are admirably clear, to have been one of catarrh of the tympanic mucosa during the secondary stages of acquired syphilis.

The short series of cases on which Sexton based this view of the nature of syphilitic deafness was analysed and commented on by St. John Roosa⁷⁵ in the same year, and his conclusions, based not merely on syphilitic deafness, but on general considerations of the knowledge of the forms of deafness, may be considered to have finally swept away the hypothesis of the middle-ear origin of the characteristic deafness associated with syphilis.

Two years before this, Sir William Dalby,⁸ in one of the best clinical papers in the literature of the subject, had laid down without any hesitation the outlines of our knowledge of the subject of aural syphilis, both congenital and acquired. In the same year, 1877, Moos⁶⁹ published a most important paper on the pathology of the labyrinth in secondary syphilis, and our exact knowledge may be said to date from its appearance. The subject was exhaustively treated by Politzer⁷¹ in 1882,

in which year also Moos and Steinbrugge⁷⁰ were able to add to our knowledge of the tertiary changes in the temporal bone. Baratoux,⁸³ in 1887, contributed a valuable review of the literature. In later years the most important contributions to the knowledge of aural syphilis have been due to Manasse,⁶⁷ who in 1903 published a weighty paper on the pathology of the internal ear, included in which were observations on a case of labyrinthine syphilis, and to Rosenstein,⁷⁷ who in 1905 summarized and added to the material bearing on the changes in the auditory nerve due to syphilis.

CHAPTER XIV

ACQUIRED AURAL SYPHILIS—AFFECTIONS OF THE EXTERNAL EAR AND MEMBRANA TYMPANI

No statistics of much value are available as to the frequency of affections of the ear in cases of acquired syphilis. The paucity of recorded cases in the primary stage is easily accounted for by the fact that infection of the external ear or meatus must in the nature of things be a rare and accidental occurrence: during the secondary stages the local manifestations of cutaneous syphilis are generally merged in the more widely spread rashes and seldom come under the consideration of the specialist. We thus have little exact information as to the case-frequency of affections of the ear among acquired syphilitics.

Among 1,200 syphilitic patients, of whom 900 had condylomata, Desprès ('Ann. d. mal. de l'oreille,' &c., 1878) observed condylomata in the external meatus five times. Ravogli ('Congressbericht,' Mailand, 1880), among 144 cases of syphilis, found the middle ear affected fifteen times and the external meatus only once (Politzer).

Habermann,⁸¹ in 1896, estimated that 1-2 per cent. of all cases of aural disease were due to syphilis. Buck,²³ in 1879, found among 4,000 aural cases 30 due to various forms of syphilitic disease, which he classified as 'external ear, ulcers and condylomata, 5; middle ear, 7; nerve deafness with normal middle ear, 7; mixed affections of the middle and internal ear, 11'. Buck, in these figures, makes no distinction between acquired and

congenital cases. Alt estimated that 5.4 per cent. of cases of 'internal ear deafness' are due to acquired syphilis.

According to Schwabach, Kretschmann, and Wiese, from 7 to 48 per cent. of syphilitics get affections of the labyrinth (Politzer).

That the labyrinth and auditory nerve are comparatively rarely attacked is probable, for the number of infected persons is very large, while the total of those suffering from the gross deafness which accompanies syphilitic disease of the labyrinth or nerve, and which admits of almost certain reference to its cause, is small both in individual experience and in the records. Infection of the pharynx and Eustachian orifice has taken place in the past by the use of infected catheters, and a considerable group of these cases has been collected, chiefly from French literature. One may hope that such a lamentable accident is no longer possible under modern conditions of practice.

Primary chancre of the auricle appears to be one of the rare conditions recorded in medicine. Three cases were cited by Politzer :¹ the first, in which the sore was situated on the lobule, was recorded by Pellizari ;³³ in this case infection seems to have been conveyed by a towel : the second was seen by Hermet at Fournier's clinic ; the patient, a woman, had a sore on the lobule and lower third of the auricle, the result of a bite from an infected person (Politzer)¹ : the third, also seen by Hermet,²⁸ was in a woman who had acquired a chancre of the auricle from her syphilitic husband. Pierce,⁹⁶ in a paper read before the International Congress of Medicine in London, 1881, agrees that primary sores of the ear are rare. One case of primary sore of the external meatus is recorded by Zucker,³⁷ in which kissing ('the too fervid caresses of a prostitute') is alleged to have been the method of infection. Sendriak⁵¹ was able to

collect in 1900 no less than twenty-eight cases of chancre of the pinna. It should, however, be borne in mind that he was working amongst a population where syphilis is extraordinarily prevalent as a contagious, largely non-venereal, disease.

Secondary eruptions over the pinna are frequent in the course of generalized cutaneous syphilis, the most common to attract attention being papules and tubercles. They rarely cause any special symptoms and, as a rule, call for no special treatment. Owing to the free exposure of the outer surface of the ear, condylomata rarely extend beyond the entrance of the meatus or, at the most, the hollow of the concha. Barclay²² recorded a case of an ulcerating tubercular syphilide of the external ear resulting in necrosis of the cartilage and atresia of the meatus.

Gummata of the auricle are rare ; ulceration takes place early, and may be rapid and destructive. Buck²³ reported several cases of typical ulceration of the pinna with other manifestations of active tertiary syphilis ; Hessler,²⁹ a case of partial necrosis of the auricle due to gumma. Field²⁶ recorded a case of loss of two-thirds of the left auricle and blockage of the meatus ; after three months the condition healed under antisyphilitic treatment : apart from this circumstance there is nothing in his description of the case which makes it clear that the condition was syphilitic. Politzer,¹ quotes Burnett for the statement that gummata may spread over the whole of the auricle, destroying by ulceration. I have seen one undoubted tertiary syphilitic ulceration of the pinna, confined to the upper part and the helix ; another, in a woman suffering from tertiary ulceration of the septum nasi and recent ulceration of the palate, with otorrhoea, in whom there was a gum-

matous ulcer destroying the summit of the antitragus and extending to the cartilage, and also shallow ulceration of the cartilaginous meatus. In another case old tertiary ulceration had destroyed the whole of the tragus and anterior meatal wall, producing so much stenosis of the entrance of the meatus that an ordinary silver probe could not be introduced. The only author whom I find making mention of primary sore of the meatus is Sendriak,⁵¹ who records two cases from the literature.

Condylomata of the external meatus furnish the commonest of the external manifestations of syphilis of the ear. Among Buck's²³ thirty cases of specific disease of the ear were five with ulcers and condylomata, probably all of the meatus; Desprès²⁵ saw five cases of condylomata of the external meatus among 900 syphilitics exhibiting condylomatous conditions. All authors agree that the condition is a comparatively common one, occurring along with condylomata and other secondary manifestations elsewhere. The presence of some pathological moist condition in the meatus favours the development of condylomata: it may be an independent otorrhoea, a moist eczema, or, as pointed out by Dalby,⁸ condylomata of the meatus may be secondary to perforation of the membrane due to a syphilitic catarrh of the tympanic mucosa and the immediate infection of the meatus by the discharge. In the former cases we should expect to find evidences of cutaneous syphilis on the pinna; in the last the condition of the meatus may well be isolated locally. According to Knapp,³⁰ meatal condylomata commence as red areas, which later become swollen and secrete, choking the meatus and extending to the osseous meatus and membrane. In the early stages there is no pain, but when ulceration occurs violent pain is experienced, radiating in the manner characteristic of meatal inflamma-

tions, and increased by movements of the jaw, which occasion alterations of form in the inflamed and thickened meatal wall.

Condylomata of the external meatus are accompanied by a watery and very offensive discharge of the particularly sickly odour associated with condylomata in other situations. The meatus is blocked by a general swelling of a dirty grey colour; the epithelium is macerated and the surface slightly papillary. It may be impossible to introduce even a small speculum sufficiently far to get a view of the membrana tympani; it is probable that in many cases its outer surface shares in the condition of the meatal wall. Owing to the pain and swelling, the condylomatous meatus may be mistaken for a furuncular condition with more than usual maceration of the epidermis: when the discharge is purulent, owing to the presence of ulceration in the deeper parts, this mistake is the more easily made. Deafness may be considerable, and there may be troublesome tinnitus. These features may be due to obstruction of the meatus, or to a simultaneous tympanic catarrh, which may have led to perforation of the membrana tympani. Exceptionally there is fever (Stoehr³⁶), which is probably always due to suppurative conditions when it is not merely the pyrexia of the secondary period. Healing may take place either after ulceration or without it: when ulceration takes place it is usually of the inferior wall of the meatus (Politzer).¹ Healing may be slow even under treatment. Fortunately there is little risk of a resultant stenosis of the meatus.

Local treatment is necessary in condylomata of the meatus, in addition to general treatment on the usual lines. The meatus must be kept cleansed by syringing with 1 in 2,000

solution of biniodide of mercury. It is a good plan, in addition, to introduce thin tampons of cotton-wool soaked in the same lotion or in black wash, and to powder the hollow of the concha with a mixture of equal parts of calomel and oxide of zinc. Politzer¹ recommends repeated cauterization of the condylomata with silver nitrate or chromic acid. Of the two reagents, the second is much to be preferred, and recourse may be had to it in cases which prove obstinate.

Gummatous ulceration of the external meatus is a rare condition. Politzer¹ records two cases of this sort in patients showing other signs of tertiary syphilis. In one, 'a characteristic ulcer formed on the inferior wall of the meatus during a chronic middle-ear suppuration. The ulcer, which had a fatty base, involved the anterior and lateral walls of the cartilaginous meatus, and its steep elevated margins were sharply demarcated from the external auditory orifice. The simultaneous occurrence of pharyngeal syphilis left no doubt as to the nature of the lesion.' In some at least of Buck's²³ cases, as in one of those already cited by the author, the meatus was involved with the auricle in gummatous ulceration. Ravogli³⁵ has described a case of cutaneous gummatous ulceration of the side of the neck in which independent ulcers developed in the meatus and also on the membrana tympani.

The diagnosis of the syphilitic conditions of the auricle and meatus rests on the same basis as that of specific skin conditions in other parts; the possibility of syphilis should be kept in mind when unusual cutaneous conditions are encountered about the pinna and meatus.

Of observed cases of condyloma of the membrana tympani there are few. Lang¹² saw 'on the right drum membrane of a woman recently affected with syphilis, a large pale shining

papule corresponding in position to the processus brevis'. The anterior superior quadrant was greatly injected, and the whole membrana tympani appeared opaque. While accepted by Politzer as a case of condyloma, this sounds more like a case of tympanic catarrh, with effusion in the attic and bulging of the membrana flaccida. Ravogli³⁵ saw one case in which both meatus and membrana tympani showed condylomata. The paucity of recorded cases is probably due to the complete blocking of the external meatus before the condition spreads to the drum. Baratoux²¹ described, in a syphilitic with gum-mata in other situations, the occurrence of a small oval tumour on the membrana tympani, with a small independent ulcer. While under observation the tumour ulcerated. Cure took place under treatment.

CHAPTER XV

ACQUIRED AURAL SYPHILIS—AFFECTIONS OF THE MIDDLE EAR AND EUSTACHIAN TUBE

PRIMARY sores at the mouth of the Eustachian tube appear to have resulted in the past from the use of infected Eustachian catheters to an extent hardly credible. While no record exists of any case within recent years, the occurrence of this condition is frequently referred to by the aural surgeons of the latter half of the last century. Though Politzer¹ states that it is 'exceedingly rare' to find a primary lesion of the mouth of the tube, and Dalby⁴³ merely states that it has occurred 'occasionally', the number of recorded cases is so considerable that, taking into consideration the ease with which the lesion might escape notice, and the enormous vogue of the catheter in the past, it is probable that a much larger number of cases has existed than has ever found its way into the records. Burow⁴⁰ mentions six cases of undoubted syphilitic infection of the tube by catheter. Sendriak,⁵¹ in 1900, collected no less than eighty-eight cases of nasopharyngeal chancre, 'nearly always as the result of catheterization': of these seventy-one were described in French literature, a proportion which leaves one to wonder whether it is due to greater care in examination and record, or to greater laxity in the past over sterilization. Lancereaux⁴⁸ recorded one doubtful case of infection of the mouth of the Eustachian tube by catheter. Tertiary changes in the mucosa and cartilage of the tube have been

described, but the value of the observations is very doubtful. The progress of syphilitic changes through the Eustachian tube may, according to Politzer,¹ result in stricture or even in atresia : it is probable that this opinion might have to be revised in the light of modern knowledge of the exceeding rarity of true strictures of the tube ; permanent organic contractures would only be at all likely after ulcerative processes, such as are not usually associated with secondary catarrh in the pharynx.

Syphilis may affect the middle ear at various stages in various degrees.

During the early stages of a specific pharyngeal catarrh, there is usually a simple Eustachian obstruction due to catarrhal swelling of the mucosa of the pharyngeal opening. The membrane is retracted, without loss of lustre or appearance of thickening ; there may be a pink reflex from the engorged mucosa of the promontory. In the absence of any concomitant affection of the labyrinth, the deafness is of simple middle-ear type, with marked loss of the lower notes by air-conduction, lengthened Schwabach's reaction, but with some shortening of the duration of perception for a middle tone tuning-fork on the mastoid when the meatus is closed. There is immediate improvement in hearing when the middle ear is inflated.

While it is impossible to bring direct evidence to bear on the point, it is probable that the mucosa of the tympanum may share in the eruptive conditions which occur on other free surfaces of the body. When such a state is uncomplicated by the secondary labyrinthine changes which may occur about the same period, its prognosis under treatment should be good. It would seem probable that the condition described by Sir William Wilde under the title of ' Syphilitic Myringitis '

(Sexton¹⁸) was of this nature. The title selected was unfortunate, but its author was well aware that the appearances of the membrane were but a part of a general condition of the tympanum. All the cases occurred in 'young men, generally those of fair complexions and blue eyes, who had had primary sores on the genitals from six to twelve months previously'. It is noted that in most of the cases the character of the primary sore had been obscure and that mercury had seldom been effectively given in the first instance. The main characters of the disease were sudden onset, without acute pain, often as an eruption was fading; occasionally at a later period, accompanied by a loss of hair: there was a sensation of fullness in the head and ear, with vertigo on stooping or rising up suddenly. The membrane showed much greater congestion than is usual in subacute catarrh of the tympanum, and it was the rule for both ears to be simultaneously attacked. Deafness was always very great; tinnitus was only exceptionally complained of. 'This inflammation does not end in a mucopurulent discharge from the tympanum, the surface of the membrana tympani, or the sides of the auditory canal.' Wilde does not record the number of cases of this type which he had observed; it appears, however, that he did not consider it very uncommon.

It was on the strength of this description, and of a series of four cases personally observed, that Sexton,¹⁸ in 1879, advanced the view that the typical syphilitic deafness was essentially an affection of the middle ear, leading to 'a speedy disarrangement of the chain of ossicles', and to interference with the movements of the stapes in the oval window. The latter supposition has been substantiated by pathological evidence in certain cases, but we now know that fixation of the stapes is incapable of producing the type of deafness which is especially associated with syphilis. Of the four cases related by Sexton, the first was obviously an example of tertiary syphilitic meningitis; the second was suffer-

ing from secondary labyrinthitis in a characteristic form with, at the same time, a middle-ear catarrh; the period of infection of the third is not mentioned, but the symptoms would point to a secondary labyrinthine affection; the fourth would seem to have been a case of middle-ear catarrh and secondary syphilis, but there is no positive evidence that the case was syphilitic, and some of the symptoms can hardly be accounted for except by a labyrinthine affection. Though these cases were supposed to illustrate middle-ear changes, there is no clear description of the otoscopic appearances in any of them. Sexton's conclusions were energetically combated by Roosa,⁷⁵ and while there was, even at the time, nothing new in Roosa's views, they mark an epoch by their definiteness, and were of importance by checking a false opinion which might have led to much confusion and delay in the progress of correct diagnosis of anomalies of hearing. Their acceptance placed the pathology of syphilitic deafness once for all on the right lines, and in spite of the fact that almost all the pathological work on aural syphilis has been done since their publication, they may still be quoted without modification. 'Very great impairment of hearing, occurring suddenly, and not to be explained by the conditions found in the auditory canal or middle ear as far as we can examine them, and not relieved at once by mechanical treatment, whether occurring in the course of syphilis or not, probably depends upon a lesion in the labyrinth or auditory nerve.' 'Absolute or nearly absolute deafness, the inability to hear certain tones (i.e. by bone conduction), are symptoms of either primary or secondary disease of the labyrinth.'

Where more definite evidences of catarrhal conditions in the middle ear occur during the secondary stage of syphilis, it is probable that there is an element of infection by micro-organisms from the nasopharynx, which may be independent of, or superposed on, a truly specific inflammation of the tympanic mucosa. Politzer¹ states that the condition may develop as a simple catarrh, as an adhesive catarrh, or as a suppuration. In no case, according to this author, is there

any distinctive otoscopic feature. 'The diagnosis of the syphilitic nature of the affection can only be established by the rapid destruction of the membrane and by the loss of perception through the cranial bones.' Of these features the latter, while due to the syphilitic nature of the disease, is not caused by that part of it which is in evidence in the changes in the tympanum, but, when it occurs, is due to simultaneous changes proceeding in the labyrinth. It is thus of no greater value than other evidences of secondary syphilis in other parts of the body in the diagnosis of the middle-ear condition. Dalby⁴³ was of the opinion that ordinary catarrhs, during the existence of secondary inflammations in the throat, were responsible for many, at all events, of the reputed secondary syphilitic conditions of the tympanum.

The symptoms of secondary tympanic catarrh are pain, which is not severe, and is worse at night, the hearing reactions characteristic of tympano-Eustachian catarrh, and evidences of interstitial exudate in the membrane without congestion (Sturgis).⁵² There may be coexistent inflammation in the pharynx. In this description there is nothing which distinguishes a syphilitic tympanic catarrh from an ordinary mild subacute catarrh of the tympanum secondary to a pharyngitis. It differs from Wilde's 'acute myringitis' only in being of a milder type with less congestion of the membrane. When suppuration takes place, it may be a mixed disease, when the tympanic mucosa is already affected by syphilis, or may be merely an accidental consequence of an infective condition in the nasopharynx. In the latter case the suppuration may be mild or of any grade of severity according to the virulence of the organism and the state of health of the sufferer : where there is a truly syphilitic condition of the mucosa and

a superadded pyogenic infection, damage is likely to be both great and rapid, with ulceration of the membrane and necrosis of the ossicles, or even of the walls of the tympanic chamber. Under such conditions the prognosis is relatively unfavourable, and this is especially so in the old and feeble, and in those with severe general syphilis. Pyogenic infection of the tympanum is particularly to be anticipated when there are ulcerative conditions in the nasopharynx. Kretschmann⁴⁶ records three cases in which the middle ear was affected by catarrhal or suppurative inflammation simultaneously with infective ulcers of the pharynx: while the nature of the pharyngeal condition was clear, there is no evidence of the syphilitic nature of the affection of the tympanum. In the nature of things it is impossible to demonstrate conclusively, in any particular case of suppurative otitis, that the condition is not merely due to pyogenic infection in a syphilitic subject. Whatever the nature of the disease, it may be anticipated that the mucosa of the Eustachian tube will share in the condition of its pharyngeal opening and of the tympanum.

Moos and Steinbrugge,⁴⁹ among one hundred cases of polypus associated with middle-ear suppurations, found one secondary syphilitic subject with bilateral discharge. There was 'total deafness' (presumably this means loss of all perception of sound through the cranial bones) on the affected side. Under specific treatment there ensued cure of the middle ear and a startling recovery of hearing, to six metres for the whisper. We are not told the fate of the opposite ear, nor whether routine antiseptic treatment was carried out in addition to antisymphilitic medication. The deafness, if correctly reported, can only be explained by some mild condition of labyrinthine

inflammation, possibly specific in nature, which recovered under treatment.

While the influence of secondary syphilis on the middle ear is in many cases debatable, it is still more difficult to define the degree in which tertiary syphilis is responsible for middle-ear suppurations. It would probably be agreed that in cases of active tertiary syphilis the prospect of a favourable ending will be less than for persons in good health ; and there is evidence that in such cases destructive changes in the temporal bone are apt to assume an abnormally active form and are often benefited by antisyphilitic treatment. Garzia⁴⁴ was of opinion that syphilis may be the cause of the prolongation of chronic suppuration in some cases, founding his opinion on the clinical observation that, in some cases of known syphilitics, good results were obtained after specific treatment. A. H. Buck²³ reported two cases in which there was double perforation of the membrane, with swelling and ulceration ' of a typically syphilitic appearance ', closely corresponding in features with a similar coexistent condition of the soft palate. The same author describes a case with caries of the tympanic walls, mastoid and petrous, leading to facial paralysis. Rarely, the intracranial complications of suppurative otitis media occur. In the presence of typical caries or necrosis of the petrous, the evidence of a syphilitic factor is hardly open to doubt, and the conclusion is of course strengthened by the arrest of the process under antisyphilitic treatment. Baumann³⁸ has described the case of a tertiary syphilitic who in the course of a pharyngeal ulceration developed a rapidly destructive middle-ear suppuration with the formation of polypi and small sequestra. A mastoid operation was performed without cure ; but under the administration of iodide of potassium

rapid healing of both pharynx and ear took place. Deep-seated caries and necrosis may lead to the erosion of either of the great blood-channels exposed to such risk; when bleeding takes place from the lateral sinus there should be a good prospect of its arrest, but in cases of bleeding from the internal carotid death always seems to have followed. Hessler⁴⁵ quotes two cases of fatal haemorrhage in tertiary syphilis; in Pilz's case the bleeding took place from the carotid; in Tungle's case the source of the haemorrhage is not mentioned, but the whole of the interior of the petrous is stated to have been completely destroyed.

Gummata of the temporal bone sometimes occur without any connexion with true disease of the ear. Collet and Beuter⁴² described two cases of gumma of the mastoid. Pollak⁵⁰ described a case of large gummatous swelling of the mastoid and temporal region, complicated by purulent otitis media. In one case seen by the author, there was a clear history of local injury, insufficient to have provoked any serious result in a healthy person: a hard oval swelling appeared over the mastoid, very tender and painful, somewhat red, with clearly marked limits, and continuous with the surface of the bone. Under mercury and iodide the condition quickly improved and disappeared; there was no evidence of any middle-ear changes in this case. In a second case the swelling was situated higher up, on a level with the roof of the external auditory meatus; it formed a firm flat elevation, somewhat red on the surface, tender and painful, of the area of a five-shilling piece. Under treatment, improvement again rapidly took place. In this case also the middle ear appeared to be normal. It must be admitted that in neither case was the historical evidence of syphilitic infection clear, but the clinical aspect of the condition

left little possibility of doubt as to its nature. A third case was of interest owing to the coincidence of the mastoid swelling with a chronic middle-ear suppuration and also with a pericranial gumma of the orbital margin. The swelling over the mastoid lay somewhat far back, was defined, very hard, tender, and painful. Its characters aroused strong suspicion before the other gumma was noticed.

A fourth case recently under the author's care illustrates the difficulty which may arise in diagnosing a gummatous periostitis of the mastoid from the swelling of an ordinary mastoiditis. The patient, a seaman of about 45, had been infected with syphilis some two years previously: he had a left chronic suppurative otitis media of long standing. While this was under treatment the mastoid became painful, tender, and swollen: its surface was firm and there was a distinct blush over it. Tenderness was most marked over the middle part of the process, and was rather strikingly absent over the antrum. The post-auricular groove was not filled up. The whole condition cleared up in three days under mercury and potassium iodide, and a marked improvement in the tympanic condition took place at the same time.

Little is known of the pathological anatomy of the syphilitic changes in the middle ear. As is justly said by Politzer,¹ we have nothing to compare in definiteness with our clear knowledge of the morbid anatomy of syphilitic iritis. Moos and Steinbrugge⁴⁹ have described a condition of hyperostosis of the inner tympanic wall following a non-suppurative specific catarrh. Baratoux and Kirchner found typical syphilitic endarteritis of the vessels of the tympanic mucosa, periosteal formation of new bone over the promontory, causing lenticular prominences, and rarefactive cavities in the wall of the labyrinth

(Politzer)¹. No similar observations of vascular changes have been recorded by other authors. The condition described by Baratoux and Kirchner appears to be identical in its morbid anatomy with that found in otosclerosis, and it is interesting in this connexion that fixation of the footplate of the stapes has been recorded by Moos⁶⁹ in a case of tertiary labyrinthitis and appears to be almost the rule in cases of tabetic deafness: it is also common in cases of congenital syphilis with deafness due to labyrinthine changes. Politzer¹ investigated the case of a man who died from phthisis, after being deaf from syphilis for ten years. With the exception of some thickened bands in the epithelial covering of the membrane, the middle ear was quite normal, confirming the clinical view that the middle ear has little or nothing to do with the genesis of typical syphilitic deafness. In a case of tertiary syphilis Moos and Steinbrugge⁷⁰ found rarefactive osteitis of the labyrinthine wall and generally throughout the petrous. The enlarged marrow spaces were filled with fibrous tissue infiltrated with small cells, and united with the periosteum of the labyrinthine wall at different places. In a case of tertiary syphilis with changes in both temporal bones, Moos and Steinbrugge⁷⁰ found periostitis and erosion of the bony walls of the Eustachian tube and tympanum; thickening and bulging outwards of the membrana secundaria, and filling up of both fossula rotunda and pelvis ovalis with caseous débris. Of undoubtedly gummatous changes in the petrous there seems to be no pathological record.

In the treatment of the syphilitic conditions of the middle ear, it is of course essential that adequate constitutional treatment should be applied in all cases, even of suspicion. In the tertiary cases iodides (vol. ii, pp. 318 and 323) should be vigorously pushed, but not to the exclusion of mercury unless

there is very good evidence of a thorough mercurial treatment in the past. Locally, in the suppurative cases, routine antiseptic treatment should be scrupulously applied, and there is general agreement that, under these circumstances at least, it is well to use mercurial lotions, the best of which is the biniodide in aqueous solution of 1 in 2,000 to 1 in 4,000. Insufflations of calomel may also be used, but the quantity of the drug introduced must be small, or caking is apt to take place in inaccessible situations. The general health must be well looked after, and a generous diet should be ordered.

Operative interference may be necessitated by the formation of a mastoid abscess, the evidence of extradural suppuration, or by the formation of sequestra. Where there is profuse discharge continuing in a tertiary syphilitic in spite of persistent care and antisepsis, the question of operation will have to be entertained on the same grounds which would hold in any ordinary case of chronic suppuration.

CHAPTER XVI

ACQUIRED AURAL SYPHILIS—AFFECTIONS OF THE INTERNAL EAR AND AUDITORY NERVE

ACQUIRED syphilis may affect the hearing through the labyrinth and auditory nerve both in the secondary and tertiary stages of the disease. It is probable that the secondary affection is in all cases a true disease of the labyrinth, while the deafness of the tertiary period is frequently due to changes in the nerve consequent on a basal gummatous meningitis; rarely the changes which produce deafness may be in the walls of the internal auditory meatus. Taken collectively, the diseases of the labyrinth and auditory nerve form by far the most important subdivision of the syphilitic affections of the ear.

It is extremely difficult to form any idea of what proportion of those infected with syphilis ever suffer to a measurable degree from deafness as a consequence. The very wide variation between the figures arrived at by various authors (from 7 to 48 per cent.), show how little reliance is to be placed on their calculations. If we compare the number of patients attending the general hospitals on account of deafness attributable to syphilis with that of the patients who come to the same hospitals for other manifestations of syphilis, we must conclude that only a small percentage of the infected ever suffer from typical syphilitic deafness. The writer would be inclined to hazard an estimate of at the most 5 per cent. But it is to be expected that the number will depend to a great

extent on the prevalence of efficient treatment of the general disease during its early stages.

The general period for the onset of syphilitic labyrinthitis lies between the fifth and the twelfth months after infection ; it is not common during the earlier skin eruptions, but rather during the stage between the typical secondary eruptions and the commencement of the gummatous period. Politzer cites from his experience one case of the development of labyrinthine deafness only seven days after the observation of the primary sore ; on the other hand the affection of the labyrinth may be delayed until two or three years later, or even as long as twenty-one years (Politzer).¹ It may of course coincide in time with syphilitic manifestations in the middle ear, catarrhal or suppurative, or with an ordinary catarrh or suppuration, either acute or chronic : there is, however, no evidence that any of these conditions affects in any way the progress or outlook of the labyrinthine affection.

The clinical features of syphilitic labyrinthitis are well marked, though in the absence of clear history or features of active syphilis in other parts, they do not admit of the making of a certain diagnosis. The presumption as to the nature of the disease cannot in the majority of cases be strengthened by the result of treatment, for this too frequently leaves the condition where it found it. It is, however, reasonable to conclude that syphilis is the cause when the typical features of a labyrinthine deafness are rapidly and painlessly developed by a young adult with no middle-ear suppuration, and especially when there is evidence, from the presence of vertigo and loss of normal labyrinthine reactions, of the involvement of the whole of the membranous labyrinth in the disease.

The onset of syphilitic labyrinthitis is sudden, and is marked

by a rapid loss of hearing : this loss is most evident for the higher tones, so that the watch or acoumeter may be quite inaudible, and even the higher forks may be completely lost, while the voice-hearing is still usefully preserved. Galton's whistle may be inaudible in any part of its range. The perception through the cranial bones is even more affected than is that by air-conduction, so that Rinne's test is positive, Schwabach's greatly shortened or altogether lost, and where the two ears are not equally affected, Weber's test is referred to the better side. There is usually loud tinnitus, which may persist in a distressing degree after all perception of sound has disappeared. At the same time the disturbance of the vestibular section of the labyrinth is declared by vertigo and general giddiness, which may incapacitate the sufferer, and by the rapid loss of labyrinthine excitability to thermal, rotatory, and electrical stimuli. Nystagmus is only to be expected when one at least of the two sets of semicircular ampullary crests retains some functional excitability. It is the rule for both ears to be affected, though not always strictly simultaneously ; one ear may be affected more slightly than the other.

The otoscopic appearances are either entirely negative, or are due to middle-ear conditions incapable of producing the changes observed in the hearing. The membrane may be normal, or may be more or less cloudy and retracted, or may show the signs of a middle-ear catarrh of mild type. Only when one ear is not affected at the time of examination, and when the affected ear is the site of a chronic suppuration, can the diagnosis be seriously in doubt ; it is conceivable that confusion might arise in such a case as to the nature of the affection of the labyrinth.

Unless there be a large element of catarrhal deafness

present along with a mild labyrinthine affection, the effect of inflation of the middle ear is generally either unobservable or is distinctly prejudicial to the immediate hearing power. Paralysis of the facial nerve may occasionally accompany secondary labyrinthitis ; it is a rare conjunction. According to Lannois,⁶⁵ who had observed four cases of this combined lesion, its occurrence takes place in the early secondary stage ; facial paralysis is rare in the tertiary period. The paralysis of the seventh nerve recovered under treatment, but hearing was in no case recovered. These 'combined paralyses' are considered to be due to changes in the nerves in the region of the internal auditory meatus, of the nature of a neuritis. It is clear that the paralysis of the facial nerve must be of this nature, but there seems to be no evidence directly bearing on the condition of the auditory nerve in these cases, and from our pathological knowledge of the changes in the more peripheral parts of the mechanism during the secondary period, it would seem probable that we have to do with a neuritis of the facial nerve with a coincident labyrinthitis. The fact that both conditions are more frequent singly than combined makes it likely that, even when they occur together, their pathology is distinct.

In spite of the comparative frequency of the condition, our knowledge of the morbid anatomy of secondary syphilitic deafness is still very defective, far more so than of the later changes which may be ascribed to the tertiary period, in which opportunity has offered itself of something like complete investigation. From the slender material at our disposal it would seem probable that in the earliest stages there is hyperaemia of the membranous labyrinth, probably accompanied by a rise in the perilymphatic pressure ; later, a small-

celled infiltration of all the structures of the membranous labyrinth and of the perilymphatic space, with degeneration or destruction of the end-epithelium both in the cochlea and ampullary crests. Voltolini described a case of secondary syphilis in which he found hyperaemia of the vestibule, of the lower part of the cochlea, and of the horizontal semicircular canal ; there was also a circumscribed hyperostosis around the fenestra ovalis (Moos⁶⁹). In Grueber's⁶⁹ case of a syphilitic soldier who died of typhus, there was apparently such a haemorrhagic labyrinthitis as may occur in any acute septicaemia, and the changes observed cannot with any certainty be ascribed to syphilis. Schwartz found in a case of acquired syphilis, dying soon after the occurrence of rapid loss of hearing, a condition of hyperostosis in the right vestibule, with synostosis of the stapes in the fenestra ovalis on both sides : there is no record of the microscopical findings in this case (Moos⁶⁹). It is to Moos⁶⁹ that we owe the best observed case of recent syphilitic deafness, death having occurred shortly after the occurrence of total loss of hearing and loud tinnitus. In this case the autopsy showed thickening of the lining periosteum of the vestibule, small-cell infiltration of the connective tissue between the membranous labyrinth and the periosteal lining of the cavity of the bony labyrinth, of Corti's tunnel and cells, and of the ampullae and membranous semicircular canals. It is most important, as confirming the view of the essentially labyrinthine nature of the secondary condition, that in this case the auditory nerve was found normal. The only change found in the middle ear was immobility of the footplate of the stapes. That these changes are typical of the condition is borne out by the findings of Arnold (Moos⁶⁹) in a case of old deafness occurring in a syphilitic in Friedrich's clinic, and almost certainly due at the time

of their occurrence to secondary syphilis. On the tympanic aspect of the labyrinth there was fixation of the footplate of the stapes, and rarefying osteitis of the outer surface of the external semicircular canal. In the interior of the labyrinth the membranous structures were found to be fused with a proliferated periosteum, except in the case of the posterior canal, of which the membranous part was thickened but not united with the periosteal lining. Where the membranous canals could be distinguished they were thickly covered with a layer of proliferated cells: the meshes of the areolar tissue between the membranous labyrinth and the lining periosteum also showed cell-infiltration. The membranous structures of the vestibule could not be distinctly recognized. In the cochlea the lamina spiralis membranacea showed thickening and a yellow discoloration; there was small-cell infiltration and only the rods of Corti could be distinguished. These changes accord fairly well with those observed by Moos.

The prognosis in cases of secondary syphilitic deafness is very unsatisfactory, somewhat worse than for cases in which the deafness develops during the tertiary stages, though possibly not quite so bad as for the cases of congenital syphilitic labyrinthitis. The extreme delicacy of the auditory end organs and their apparent inability to recover from inflammatory changes, if these have been at all prolonged, are probably important elements in the unfavourable outlook. While some cases of secondary syphilitic deafness are recorded in which partial or even great improvement is alleged to have taken place, the contrary is certainly the rule, and the question always arises whether such cases have been accurately reported or correctly diagnosed. In this connexion it is noteworthy that just at the time when the pilocarpine treatment was being taken up

with enthusiasm, especially in America, opinions were most hopeful as to the possibility of recovery from syphilitic labyrinthitis. Time has almost entirely destroyed the belief in the efficacy of pilocarpine, and in the process has removed much of the hopefulness about the results of treatment in secondary syphilitic deafness.

In the treatment of syphilitic labyrinthitis developing during the secondary period there is no question that, if any good at all is to be attained, it must be by the prompt application of the most efficient drugs ; hearing may be totally lost within a few days of the first symptoms. It is generally agreed that mercury and iodides should in all cases be given, the mercury preferably by intramuscular injection and the iodide in large doses by the mouth. Opinions as to the usefulness of pilocarpine have been sharply opposed, between the extremes of faith in its value and complete denial of any curative powers. Politzer⁷¹ advocates its use, and states that he has found it of greater effect in the early stages of acquired syphilitic labyrinthitis than in congenital cases, but makes no explicit statement of the degree of recovery which he has been able to ascribe to it. Crockett,⁶⁰ as the result of an experience of some fifteen cases, advises the combined use of mercury, iodide, and pilocarpine : his conclusion is that pilocarpine is of no permanent value, and that except in the earliest cases the prognosis is very poor. In America Dench⁶¹ has been one of the most steady advocates of the pilocarpine treatment, alleging surprisingly good results. In many of his published cases there seems to be no clear proof of the syphilitic nature of the disease, and the recovery of a number of cases from a gross degree of labyrinthine deafness is sufficiently surprising to cause hesitation in accepting them. On the other hand a great

number of cases is recorded in which no benefit whatever was obtained by the use of pilocarpine.

The position with regard to the treatment of secondary syphilitic deafness may be summarized in the following statements :—

In a large number of cases no treatment is of avail at any period.

In old cases there is never any possibility of effecting improvement.

Mercury by itself does not protect the labyrinth effectively ; deafness may come on under treatment by mercury.

Iodides, to be of any use, must be given in very large doses.

Improvement under pilocarpine, when it takes place, is often only temporary.

On the whole, the best prospect is afforded by treatment with pilocarpine in sufficient doses to produce sweating and salivation, in combination with ordinary antisymphilitic treatment on energetic lines.

The patient should be confined to bed, purged, and lightly fed. Sexual intercourse seems to have a particularly disastrous effect on the prospects of hearing, and should be forbidden during treatment. It remains to be seen whether the new organic arsenic compounds (vol. ii, p. 308) will be of any real value in the treatment of syphilitic deafness.

During the tertiary period of syphilis, deafness may appear at any time, cases being recorded as late as twenty years or more from the date of infection. Owing to the remoteness in time, and to the fact that the clinical features of the disease are wholly functional, the cause of the deafness is often in these cases open to doubt. Our knowledge of the symptomatology of this group is thus less clearly defined than is that of

the secondary period. In general the onset of the deafness is much less sudden, and the loss of hearing is often insidious, owing to the fact that while high notes may be lost and perception through the cranial bones entirely abolished or greatly impaired, the hearing for voice-tones may still be fairly preserved. In many cases, according to Rosenstein,⁷⁷ the defect has to be sought for before it can be recognized. Vertigo may be present, but in many cases with well-marked pathological lesions there has been no complaint of this symptom.

Pathological knowledge of tertiary syphilitic deafness has gone beyond clinical observation ; we have the description of changes in the labyrinth, the spiral ganglion, the trunk of the eighth nerve, and possibly of primary degenerations of the roots and nuclei of the nerve ; but we are unable at present to ascribe particular symptoms to the different lesions, with the exception that where a true vertigo is present it is almost certain evidence of changes taking place in the ampullary endings of the nerve or in the cristae themselves.

In a syphilitic, deaf for ten years, and dying of phthisis at the age of 50, Politzer¹ found atrophy and destruction of the ganglion cells of the spiral ganglion, with no recognizable changes in the lamina spiralis, vestibule, or semicircular canals ; there is no description given of the condition of the auditory trunk.

Moos and Steinbrugge,⁷⁰ in a valuable investigation of the temporal bones of a tertiary syphilitic, found degeneration of the nerve-cells of the spiral ganglion in Rosenthal's canal, and recent and old extravasations of blood in the trunk of the auditory nerve. There was partial degeneration of the facial nerve but no facial paralysis.

Manasse⁶⁷ has given us the most detailed and exact account

of the changes found in the petrous bones of a tertiary syphilitic, deaf for about a year, who died of a ruptured aneurysm of the basilar artery. The deafness had been of labyrinthine type (Plate XLV). The subject was a male, aged 35. On the left side, the middle ear was normal. In the internal ear finely granular deposits were noticeable, covering the epithelium of the roof of the scala vestibuli, and the under-surface of the lamina spiralis ossea and basilar membrane in the scala tympani. The deposits contained no cells. The most marked changes had taken place in the scala tympani, close to the modiolus. Here bands of new tissue could be seen extending from the periosteum into the lumen of the scala. The new formation was made up of fibres arranged in a coarse network containing stellate connective tissue corpuscles at their intersections. Where these deposits were most extensive, about one-tenth of the lumen of the scala was encroached upon. The cells of Corti's organ were swollen, some containing beads of hyaline material. Changes of a similar nature, but less well marked, were present in the vestibule and semicircular canals. Where the nerve entered the labyrinth, the fibres were separated by masses of round cells and blood corpuscles. At the porus acusticus internus the nerve was so distended that it completely filled the canal. It had been so invaded by cells that the fibres on section appeared very much scattered. More centrally the nerve trunk contained no blood cells, but numerous small areas of round cells. They were situated mainly between the fibres as elongated masses, but several large oval masses, resembling nodes of adenoid tissue, were present. A similar infiltration by round cells was also observed in the branches of the auditory nerve in the labyrinth and in the ganglion spirale. In the right petrous similar but more extensive

changes had taken place. The entire scala tympani, particularly at the base of the first turn, was filled with a fibrillar network of connective tissue, the meshes of which were for the most part extremely close and delicate. The interfibrillar spaces were filled with a finely granular coagulated mass, which contained a few nucleated round cells. A similar granular deposit was also present in the upper part of the scala media. Corti's organ was easily recognizable, though some of its cells had undergone hyaline degeneration. In the upper turn of the cochlea there was proliferation of the endothelium covering the lining periosteum; similar changes were found in the vestibule. Nodular hyaline masses had been deposited in the interior of the membranous semicircular canals. In the ganglion spirale of the first turn there was an extravasation of blood. In the trunk of the auditory nerve changes similar to those on the left side were present, but less marked.

The characteristic changes would seem to be those of the ganglion cells and nerve trunk, all of which are probably due to vascular degeneration rather than to primary changes in the nervous structures. The extensive changes in the cochlea and throughout the fibrous tissues of the labyrinth in Manasse's case were certainly not of recent origin, and may well have been the result of long past secondary inflammation. They agree sufficiently well with the features of Moos's case of recent secondary labyrinthitis.

The pathology of the changes in the auditory nerve in syphilis was investigated at length by Rosenstein⁷⁷ in 1905, and their share in the production of syphilitic deafness was defined with greater clearness than had previously been attained. The related symptomatology still unfortunately lacks a good deal of definition. While we recognize the symptoms due to

tertiary disease, we are at present unable to say definitely that a given case shows evidence of disease of the spiral ganglion, another of the trunk of the nerve, another of degeneration of the roots and nuclei. All give rise to the features of a labyrinthine or 'nervous' deafness; and, beyond the assertion that in such cases the damage lies deeper than the middle ear, its exact site cannot be established by functional tests. It is of importance that Rosenstein was able to show that in many cases of well-marked change in the trunk of the auditory nerve, hearing may be tolerably well preserved, and that there may have been no complaint of vertigo in cases of change either in the trunk of the vestibular nerve or in the semicircular canals. Hyperacusis may be an early symptom. In all ways the symptoms of tertiary disease seem to be less notable in their incidence, more gradual in their development, and to some degree more capable of recovery than are those of the secondary period.

Rosenstein concluded that affections of the auditory nerve in tertiary syphilis are much commoner than is usually believed, many cases being missed clinically owing to the unobtrusiveness of the symptoms, others being classed as 'labyrinthine'. The essential lesion, he found to be most commonly a basal gummatous meningitis, so that only a part of the clinical sequences are aural; other nerves may be involved, particularly the facial, but owing to their relatively great power of resistance, paralysis of these nerves is not common. As had been shown by Moos and Steinbrugge,⁷⁰ there may be partial degeneration of the facial nerve without any observable consequences. A less common cause of damage to the nerve is gummatous periostitis within the internal auditory meatus. The period of onset of the tertiary form is generally late, but cases

have been recorded in which meningitis appeared quite early.

While the development of tertiary syphilitic deafness is insidious and gradual, its course tends to be steadily progressive, nor is it to be hoped that fibres of the auditory nerve once degenerated will recover. In the prognosis and treatment of these conditions it is thus of the greatest moment that the disease should be identified at the earliest possible stage. The best hope would seem to lie in the liberal use of iodides with a moderate course of mercury. The prognosis is at the best a poor one, but partial recovery is possible where the damage to the nerve is in an early stage; where the facial nerve has suffered, its recovery is the rule.

It appears to be probable that cases occur of primary degeneration of the roots and nuclei of the eighth nerve, but adequate evidence on this point is not as yet forthcoming.

The subject of deafness in tabes and general paralysis has received a good deal of attention during the last ten years. Both on the clinical and pathological side the deafness of tabes shows kinship with that of tertiary syphilis. Deafness may occur suddenly in the pre-ataxic stage, a condition justly compared by Hermet⁶⁴ with primary optic atrophy. More generally the loss of hearing is slow and remains partial, its exact degree being difficult to ascertain owing to the mental changes which have frequently developed in institutional patients. It is doubtful whether the deafness, which is of gradual onset, ever becomes total in tabetics, the difficulty of carrying out functional tests with any degree of reliability in such cases being so great. The contrary opinion, however, was held by Lerner.⁶⁶

Both in tabes and in general paralysis the occurrence of

hyperacusis as an early symptom has been observed. Lerner⁶⁶ mentions tinnitus, vertigo, nausea, and pain in the ear as all occurring before the development of deafness in tabetics : he had never observed any improvement from treatment. Habermann⁶³ recorded the case of a cook dying of tabes at 52, in whom there had been thirteen years previously stinging pains in the left ear and tinnitus ; after a year, complete deafness, without vertigo ; later, development of tabes. In cases of general paralysis Mayer⁶⁸ has observed during the prodromal period excessive sensitiveness to high tones, with high pitched tinnitus, and sometimes attacks of violent pain in the head at intervals. The same observer investigated ten cases during the intermediate period, and in five found evidences of ' nerve deafness ' ; in none was the deafness of high degree. In one case only did the aural symptoms precede the appearance of evidences of early general paralysis.

Three views have been held in the past as to the nature of the deafness associated with tabes : that it is due to atrophy of the auditory nerve or its terminations, that it is due to atrophic changes in the middle ear secondary to degeneration of the fifth nerve, and that it is due to definite syphilitic disease such as is met with in the ordinary cases of tertiary syphilitic deafness. The weight both of opinion and of recent pathological evidence is in favour of the view that the bulk of the symptoms are due to atrophic changes in the auditory nerve and in Corti's organ, the latter being possibly secondary. There is but little evidence as to affections of the cristae of the semicircular canals in tabes, a circumstance the more to be regretted owing to the obvious possibility, pointed out by Bonnier,⁵⁴ that Romberg's symptom may be wholly due to changes of a degenerative kind in the cristae or

in the vestibular portion of the eighth nerve. It is probable that the pains recorded in the early stages of some cases are due to fifth nerve degeneration, but it is impossible to ascribe the deafness to this cause. Of syphilitic disease of the auditory nerve, such as has been described by Manasse⁶⁷, there seem to be occasional traces in tabetics, but the degenerative changes overshadow all others by their constancy and magnitude. Friedrich⁶² is of the opinion that the essential change in tabetic deafness is a degeneration 'in the primary neurone of the acoustic tract', commencing in the peripheral terminations, and analogous to the other sensory atrophies. In the 'apoplectiform variety' he attributes the symptoms to an auditory crisis produced by a disease of the acoustic nuclei.

Pathological investigations have been carried out, in the case of tabes by Habermann⁶³ and Bruehl,⁵⁵ in that of general paralysis by Mayer.⁶⁸ Habermann found in the case already cited grey atrophy of both acoustic nerves; the main and accessory nuclei were intact; the lateral and median acoustic roots much atrophied; the ascending acoustic roots were not altered. Microscopically there was almost complete bilateral atrophy of the fibres of the ramus cochleae, those of the ramus vestibuli being less altered. In the cochlea only a few fibres survived near the apex, and in the spiral ganglion a few ganglion-cells in the basal turn. Bruehl,⁵⁵ in a specimen of tabes with deafness, found degeneration in the nuclear region of the eighth nerve and marked atrophic changes in the cochlea, particularly in the spiral ganglion. In a series of five patients with general paralysis, Mayer⁶⁸ found in all the ears degenerative processes of various grades, progressing to complete atrophy, distributed through the whole of the nervous

parts from the organ of Corti to the medulla. In addition, he found in some cases demonstrable evidence of a true neuritis in interstitial inflammatory changes, and arterio-sclerotic changes in the blood-vessels of the labyrinth to which he attributes the atrophy of the organ of Corti. Mayer is of opinion that the degenerative processes in the auditory nerve and spiral ganglion may be either primary or secondary to degeneration in the medulla, and that the mild deafness of the earlier stages is accounted for by atrophy of Corti's organ rather than by the profound changes in the nerve trunk, a conclusion very open to doubt.

CHAPTER XVII

INHERITED AURAL SYPHILIS

INHERITED syphilitic diseases of the ear form an important class, capable of subdivision into three groups possessing very different clinical features ; those cases in which there is gross disease at birth ; those in which the ear is affected shortly after birth ; and those in which the onset of damage is deferred to the period of adolescence, or later. Owing to the greatly preponderant importance of the last group, it is convenient to consider the aural diseases due to congenital syphilis from the point of their clinical incidence rather than, as in the case of acquired syphilis, from a regional standpoint.

Of the congenital syphilitic children who have at birth obvious disease of the ears, a large proportion die at birth or very shortly afterwards, no doubt from visceral syphilis. Those who survive become congenital deaf-mutes. Fortunately the proportion of children who are born with grave syphilitic lesions and live to adult age is very small. Of forty cases of strictly congenital deafness Moos⁹⁴ found one only which could be ascribed to parental syphilis. In the majority of these cases there is disease both of the middle ear and of the labyrinth. Our exact knowledge of the condition is chiefly due to Baratoux,^{83 84} who investigated forty-three cases of congenital syphilitic infants with aural disease. Of these no less than nineteen were still-born, and accurate pathological examination was thus rendered possible. Eight of them had middle-ear suppuration

only, three had an isolated affection of the labyrinth, eight had disease both of the middle ear and of the labyrinth. In the last class there was found suppuration in the labyrinth as well as in the middle ear, with destruction of the membranous labyrinth: where the labyrinth alone was involved, the principal features were hæmorrhage and destruction of the organ of Corti.

The outlook for hearing under such conditions is of course hopeless: there is no conceivable treatment which can be of avail.

The second group includes those cases which suffer from syphilitic nasopharyngeal catarrh in the early months of extra-uterine life, and from secondary suppuration in the tympanum. Such suppurations may be of an ordinary pyogenic origin, but in many cases at least they are complicated by a syphilitic element. In addition, the resistance of the tissues to pyogenic invasion is exceedingly poor, the destruction of the membrane and ossicular chain is often great, and not infrequently the labyrinthine windows are penetrated and the labyrinth involved in suppuration. Condylomata may occur in the external meatus when the middle-ear disease is definitely syphilitic, as they do also in the acquired cases of similar nature: while not common, they have been reported by Grueber, Schwartz, Buck, and others (Knapp⁹³). According to Habermann,⁸¹ macular, pustular, and papular syphilides have also been observed in the external meatus in cases of congenital syphilis. Such cases of syphilitic middle-ear inflammation are very apt to become deaf-mutes, the power of hearing being either entirely abolished or so much damaged as to be useless. It is difficult to say with exactness how many of the cases of deaf-mutism owe their origin to this form of disease. Histories are frequently vague

or misleading, and it is by no means always possible to allot the cases between congenital syphilis and the specific fevers. Dalby,⁸⁶ at a time when the treatment of congenital syphilis among hospital patients was probably much less thorough than at present, considered that congenital syphilis was only second to scarlet fever as a cause of deaf-mutism.

The prognosis for hearing in these cases is somewhat better than in the majority of forms of syphilitic ear disease, provided that constitutional treatment is prompt and efficient, and results in the cessation of the middle-ear suppuration. Locally a thorough antiseptic treatment should be carried out, and the greatest care must be taken, as in all cases of middle-ear discharge in children, to prevent the introduction of fresh infections by the patient's fingers.

In the congenital syphilitic deafness of adolescents we find at once by far the most numerous and the most clearly defined group of cases. The proportion of hereditary syphilitics who suffer in this way has been variously estimated. Hutchinson and Jackson⁹¹ placed it at 10 per cent., Hermet and Baratoux as high as 30 per cent. (Politzer¹). Habermann⁸¹ estimated that the ears are affected in from one-fifth to one-third of all cases of hereditary syphilis. Alt⁸² found 3.1 per cent. of cases of labyrinthine deafness to be due to hereditary syphilis. Hinton stated that one-twentieth of all aural outpatients at Guy's Hospital in his time were due to hereditary syphilis (Knapp⁹³). The age-incidence shows fairly well-marked limits, which may be placed at eight to eighteen; examples of either extreme are, however, rare, and the majority of cases occur between the ages of eleven and fourteen. Knapp⁹³ placed the time of incidence at 'about fourteen', and noted the fact, agreed upon by other observers, of the frequent association of the condition

with interstitial keratitis. It is usual for this to anticipate by a short period the onset of deafness ; both conditions may develop together ; rarely the deafness anticipates the keratitis. Not uncommonly the patient has been for some little time under treatment for the eyes when the deafness first appears. Pierce⁹⁶ places the limits of age-incidence at eleven to eighteen years, but cases certainly occur before the age of eleven.

There is a curious inequality in the proportion of the two sexes among sufferers from hereditary syphilitic deafness ; females greatly preponderate. Hutchinson⁹⁰ and Gradenigo⁸⁸ agree in placing the ratio of females to males at two to one : Pierce⁹⁶ estimated it at four to one. Among five hundred and forty-one ear patients, Cheatle¹⁰⁰ found nine females among eleven cases of hereditary syphilis. Probably no single clinic would furnish a sufficiently numerous array of cases to arrive at a trustworthy figure : but the disproportion between the sexes is obvious to every worker in a large outpatient aural clinic.

Adolescent syphilitic deafness resembles in many points, both clinically and pathologically, the labyrinthitis of the secondary stage of acquired syphilis. It is essentially a labyrinthine disease, as was clearly laid down by Dalby⁸⁶ as early as 1877, and follows the type. Its onset is painless and sudden, its progress rapid, leading early to a gross loss of perception through the cranial bones. There is a special loss of hearing for high tones. Tinnitus may be complained of, but it should be remembered that this is rare in any form of aural disease among children. Vertigo may be present, but is not the rule. There is occasionally a concurrent mild tympanic catarrh ; but when this occurs, it has nothing essentially to do with the disease, nor does its presence or absence modify in any way

its progress. More frequently the membrana tympani is dull, retracted, and opaque, from old recurrent tympano-Eustachian catarrh associated with an unhealthy nasopharynx. Pritchard and Cheatle¹⁰⁰ divided cases of inherited syphilitic deafness into two groups, those with initial vertigo and those in which vertigo does not appear; of these the former is much the less numerous. They suggested that there may be a difference in the pathology accounting for this, cases without vertigo being due to chronic periostitis of the internal aspect of the labyrinthine capsule, those with this symptom being due to the formation of a plastic exudate within the labyrinth. These conjectures are not inconsistent with our still scanty knowledge of the exact pathology. The two groups have been compared with the tertiary and secondary cases among those with acquired syphilis; we have, however, now a considerable acquaintance with the pathology of tertiary syphilitic deafness, and know that it has less in common with periostitis than might have been expected.

When these cases are seen some years after the onset of deafness, they frequently manifest a very poor type of mental development; parents on the other hand often assure us that the child used to be of average or even of bright intelligence, but that, after deafness appeared, the mind seemed to go back. In some cases only the simplest ideas seem capable of apprehension, and the temper is often uncertain or violent.

A boy of eighteen was sent to St. Bartholomew's Hospital for his deafness. Four years previously both eyes had become almost totally blind from interstitial keratitis; he now saw well enough to find his way about and to recognize faces. Shortly after the keratitis began, he became rapidly deaf; no improvement had taken place in the hearing. He had well-

marked Hutchinsonian teeth, and radiating scars about the angles of the mouth. Both corneae were very cloudy. He appeared stupid, moody, and irritable. Shouting into the ears was perceived as a noise ; a heavy tuning-fork (512 d.v.) was just heard at the meatus when strongly struck ; there seemed to be complete loss of perception through the cranial bones. The membranes were cloudy and thickened by old catarrh. Articulation was very defective, and his vocabulary was very limited.

Not infrequently, in these cases of late hereditary syphilitic labyrinthitis, one ear is affected before the other : it is, however, an almost absolute rule that both become deaf. The influence of any form of treatment is so small that the ear in which the commencement of deafness is deferred seldom has any ultimate advantage over that which is first affected. The degree of deafness attained is always great ; in many cases all perception of sound is lost ; in nearly all, useful hearing disappears, though confused perception of sound may be retained ; in a few, imperfect understanding of speech remains for loud utterance close to the ear. I have never seen, and have been unable to find any record of satisfactory recovery of hearing in one of these cases. Even when some perception of the voice remains by air-conduction, there is generally total loss of perception for the tuning-forks of all pitches through the cranial bones.

The prognosis for hearing is from the first almost absolutely bad. In those cases in which there is vertigo and disturbance of equilibrium, this symptom gradually diminishes and in the greater number of cases entirely disappears with time. It is the general rule that complete compensation for the loss of labyrinthine stimuli is attained more rapidly and

completely in the young than in adults, and, though many hereditary syphilitics end in a condition of total loss of both labyrinths as functional organs, they recover walking power and betray no difficulty of equilibration under ordinary circumstances. Nor are they subject to the attacks of sudden vertigo on exertion which often disturb those who have lost one labyrinth through pyogenic infection.

The subjects of adolescent syphilitic labyrinthitis do not become deaf-mutes. In the majority of cases the voice becomes flat and toneless, and enunciation, especially of the vowel sounds, is apt to become progressively defective unless great care is taken in constantly correcting faults. In many of these children the mental powers, already poor, become more and more torpid owing to the isolation caused by their deafness : in a minority progressive degeneration of the central nervous system declares itself, and the patient ends as a juvenile general paralytic.

A boy of 15, an only child, presented an extraordinary picture of the effects of congenital syphilis. The head was large and well shaped ; the trunk and limbs resembled those of a deformed child of eight, the alterations in many of the bones at first sight suggested rickets. Until recently he had done well at school, and had shown some special talent for drawing. When eleven years old, he became deaf in both ears ; on the right side there had been for four years previously a purulent discharge. For further details see *The Med. Press and Circular*, Aug. 4, 1909, p. 110.

He appeared to be totally deaf, and, as far as could be ascertained, there was no perception of sound through the cranial bones. Lately there had been a rapid mental degeneration, and when seen his condition approached that of imbe-

cility ; he had largely lost the use of words to express his ideas. There is little doubt that this case will quickly pass into the stage of general paralysis.

On the other hand there is no doubt that the apparent dullness of many of the sufferers from deafness with hereditary syphilis is due simply to their loss of the means of communication with others, and to the consequent neglect with which they often meet. Under such circumstances a surprising improvement can often be effected by care and the teaching of lip-reading. The following case will serve to illustrate this, and also the liability to the development of a probably specific labyrinthitis long after the usual period in congenital syphilitics with suppurating ears.

A girl of 18 was brought with bilateral otorrhoea and deafness. There was a clear history of inherited syphilis. In one ear the deafness was complete ; in the other there was a gross middle-ear deafness with retention of perception through the cranial bones. First one and then the other ear was operated on for inflammatory outbreaks. After this the labyrinth which had till now retained sensibility became deaf also. From a surgical standpoint, the operation on both sides was completely successful. When first seen she appeared very stupid, suspicious, and was said to be emotional and uncertain in temper. She was taught lip-reading, for which she showed remarkable aptitude, and she is now occupied as a professional teacher of lip-reading. Her whole aspect and character seemed to undergo alteration by the restoration of her power of communication with others.

Where recorded success from any form of treatment is practically non-existent, it is difficult to advocate active medication. In view of the pathological findings, it is hardly

imaginable that any serious amount of recovery can take place in the damaged structures, and the only hope lies in the possibility of arrest of the process in its early stages. Unfortunately there is no pain, and the sufferers are often neglected and dull or mentally defective children, while the onset is sudden and loss of hearing may become complete within a very short time. It is obvious that all children with hereditary syphilitic keratitis should be regarded as being in grave risk of deafness, and if any effective prophylactic treatment could be applied, this would be the most hopeful method of dealing with these cases. As a matter of fact, as has already been mentioned, many of the cases occur while actually under treatment for keratitis, sometimes after treatment for this condition has been continued for many weeks. It is thus no matter for surprise that treatment by mercury and iodide seems to have no appreciable effect after the symptoms have once made their appearance, still less when the condition has become confirmed and stationary. Treatment by pilocarpine has had its advocates, but there seems to be equally little to be said for the results obtained. Politzer,¹ while approving of the use of pilocarpine in syphilitic labyrinthitis, has little enthusiasm for it, and takes an especially gloomy view of the outlook in cases of hereditary disease. Pilocarpine has been largely used in the United States, but extended experience has shown that its usefulness is small. Dench⁶¹ advocates its use in doses of gr. $\frac{1}{8}$ by the mouth, combined with iodide. Such a course, with initial injections of calomel or grey oil, represents the total of our present powers of treatment.

While nearly all cases of late hereditary syphilitic deafness are unquestionably due to changes in the labyrinth, Rosenstein¹⁰¹

is of the opinion that this is not always the case, but that a small minority are caused by a syphilitic meningitis similar to that occurring in the tertiary stage of acquired syphilis. In these, the diagnosis is made by the involvement of other nerves, particularly the facial. A case in point has been published by Stiel,¹⁰³ in which there was complete deafness accompanied by left facial paralysis: no improvement took place under treatment. The possibility of late syphilitic meningitis in hereditary cases deserves more attention; at present the records of such a condition are very scanty.

In addition to the above forms of disease, hereditary syphilis has been credited by various authors with being the cause of certain other affections of the ear. Cassells⁸⁵ described cases of 'chronic mucotympanitis' in hereditary syphilis, which possessed the features of an ordinary chronic tympanic catarrh, and was improved by simple treatment on routine lines: there appears to be no reason to regard these as in any way distinctively syphilitic. Pomeroy⁹⁷ saw a 'papulo-tubercular eruption' on the membrana tympani of an hereditary syphilitic: the appearances are carefully described, but the nature of the eruption remains very doubtful. I can find no other mention in the literature of any similar eruption, unassociated with obvious syphilides of the external meatus. Hurd published a case of 'syphilitic mastoiditis' in a child of four. The only evidence of the specific nature of the inflammation was a pathologist's pronouncement on the nature of the granulo-matous tissue formed in a delayed process of healing after Schwartze's operation for mastoiditis, which followed an operation for adenoids. The child showed no other signs of constitutional syphilis, nor was syphilis discoverable in the parents or attendants, but healing took place under mercury

and iodide. Gradenigo⁸⁹ has expressed the opinion that both chronic middle-ear catarrh and otosclerosis occur in an undue proportion of hereditary syphilitic subjects and are often benefited by specific treatment. Here the clinical results of treatment are at least of some value if the connexion can be statistically established; but even so there is no adequate reason to consider the pathological condition as essentially due to the syphilis. In contradistinction to those authors who would include, among the consequences of syphilis, conditions which may at least be independent of it, Schwabach¹⁰² expressed the opinion that some of the cases of deafness which are ascribed to hereditary syphilis on account of their clinical type may have some other causation, which has not as yet been sufficiently identified. It is undoubtedly the case that evidence of syphilis in the parents is frequently quite unobtainable in cases in which it might have been expected, and that similar conditions have been described in tuberculous children.

Not much is known of the pathology of late inherited syphilitic deafness. Baratoux⁸⁴ investigated the labyrinthine changes in four cases of hereditary syphilis in which the internal ear was alone affected. He found cellular proliferation of the lamina basilaris, fibrinous clots in the vessels, and rupture of their walls. In every case there was haemorrhage in some part of the labyrinth. Such a pathology accords well with the observed clinical onset and features of the disease. Downie⁸⁷ investigated a case of complete deafness in an hereditary syphilitic who died from encephalitis secondary to syphilitic necrosis of the skull. The membrane and ossicles were normal except that the footplate of the stapes was fixed by bone; the mucosa was natural, and the Eustachian tube patent. The mastoid was compact. In the internal meatus there was

periosteal thickening of the upper wall at a distance of 1 cm. from its entrance, causing almost complete obliteration of its lumen. The vestibule was almost entirely filled up by bone. In the cochlea there was great thickening of the modiolus and bony lamina spiralis. Of the semicircular canals, the external was just traceable, the superior and posterior were entirely obliterated. The nerves at the entrance to the internal meatus appeared healthy. It is very greatly to be regretted that no microscopical examination was made. This case would appear to justify Pritchard and Cheatle's hypothesis of a class in which the morbid anatomy is essentially a chronic periostitis of the internal surface of the labyrinthine capsule. It is interesting to find here again the feature of bony fixation of the stapedial footplate. If this change took place independently of intralabyrinthine changes, there would be produced the ordinary type of otosclerosis, many cases of which have been ascribed by Gradenigo⁸⁹ to the influence of hereditary syphilis.

C. Eust. Hunt.

BIBLIOGRAPHY

I have endeavoured to make this bibliography as complete as possible. In some cases it has been impossible to obtain access to the earlier authors.

ACQUIRED SYPHILIS

General.

1. Politzer, Diseases of the Ear, trans.
2. Jegu. Paris. Lib. Lechevalier, 1884.
3. Betz, Memorabil., Heilbr., 1863, viii, iii.
4. Baratoux, Rev. mens. de laryngol., etc. Paris, 1885, v.
5. ——— ibid., 1886, vi.
6. ——— ibid., Bordeaux, 1883, iv.
7. Buck, Amer. J. Otol. : N. Y., 1879, i.
8. Dalby, Lancet : Lond., 1877, i.
9. Feichtmann, Zeit. f. Naturh. u. Heilk. in Ungarn : Oldenburg, 1857.
10. Grueber, Wien. Med. Presse, 1870, xi.
11. Kretschmann, A. f. O. : Leip., 1885-6, xxiii.
12. Lang, Path. and Treat. of Syphilis, 1888.
13. MacLachlan, Homeop. Eye, Ear, and Throat Journ. N. Y., 1903, ix.
14. Moos, Z. f. O. : Wies., 1884, xiii.
15. Pierce, Tr. Intern. Congr. : London, 1881, iii.
16. Rozier, Bull. de laryng., etc. : Paris, 1904, vii.
17. ——— Ann. d. mal. de l'or., etc. : Paris, 1905, xxxi.
18. Sexton, Am. J. Med. Sc. : Philad., 1879.
19. ——— Am. J. Otol. : N. Y., 1880.
20. Turnbull, Med. and Surg. Reporter : Philad., 1880, xliii.

EXTERNAL EAR, EXTERNAL MEATUS, AND MEMBRANE

21. Baratoux, Bull. et Mém. de la Soc. Franç. d'Otol., ii, 176.
22. Barclay, J. of Cutan. and Genito-urinary Diseases, 1888.
23. Buck, Am. J. of Otol., 1879.
24. Byrant, Amer. J. of Dermat. and Gen. Ur. Dis. : St. Louis, 1906.
25. Desprès, Ann. des mal. de l'oreille, etc., 1879.
26. Field, Brit. Med. J. : Lond., 1877, ii.
27. Grüber, Wien. Med. Presse, 1870.
28. Hermet, Ann. de dermat. et de syph., 2^e série.
29. Hessler, Arch. f. O., xx.
30. Knapp, Z. f. O., viii.
31. ——— Arch. Otol., 1879, i.
32. Noquet, Rev. mens., 1885.
33. Pellizari, Virch. Arch., lxix, 313.
34. Pomeroy, N. Y. Med. J., 1885, xli.
35. Ravogli, Congressbericht Mailand, 1880.
36. Stoehr, A. f. O., v.
37. Zucker, Zeit. f. O., xiii, 171.

MIDDLE EAR, EUSTACHIAN TUBE, AND MASTOID

38. Baumann, Inaug.-Dissert. : Bonn, 1902.
39. Beuter, Lyon Méd., 1903.
40. Burow, Monatsch. f. Ohrenh., 1885.
41. Cassells, Glasgow Med. Journ., 1882.
42. Collet and Beuter, Lyon Méd., 1903.
43. Dalby, Lancet : Lond., 1877, i.
44. Garzia, Fifth Internat. Otol. Congress. Rep. A. of Otol., 1896.
45. Hessler, A. f. Ohrenh., xviii.
46. Kretschmann, Arch. f. Ohrenh., 1886-7.
47. Ladreit de Lacharrière, Ann. des mal. de l'or. et du lar. : Paris, 1875.
48. Lancereaux, Gaz. des Hôpitaux, 1886.
49. Moos and Steinbrugge, Arch. of Otol., 1882.
50. Pollak, Allg. Wien. Med. Zeit., 1881.
51. Sendriak, Monatsch. f. Ohrenh., 1900.
52. Sturgis, Boston Med. and Surg. J., 1880.
53. ——— Philad. Med. Times, 1875-6, vi.

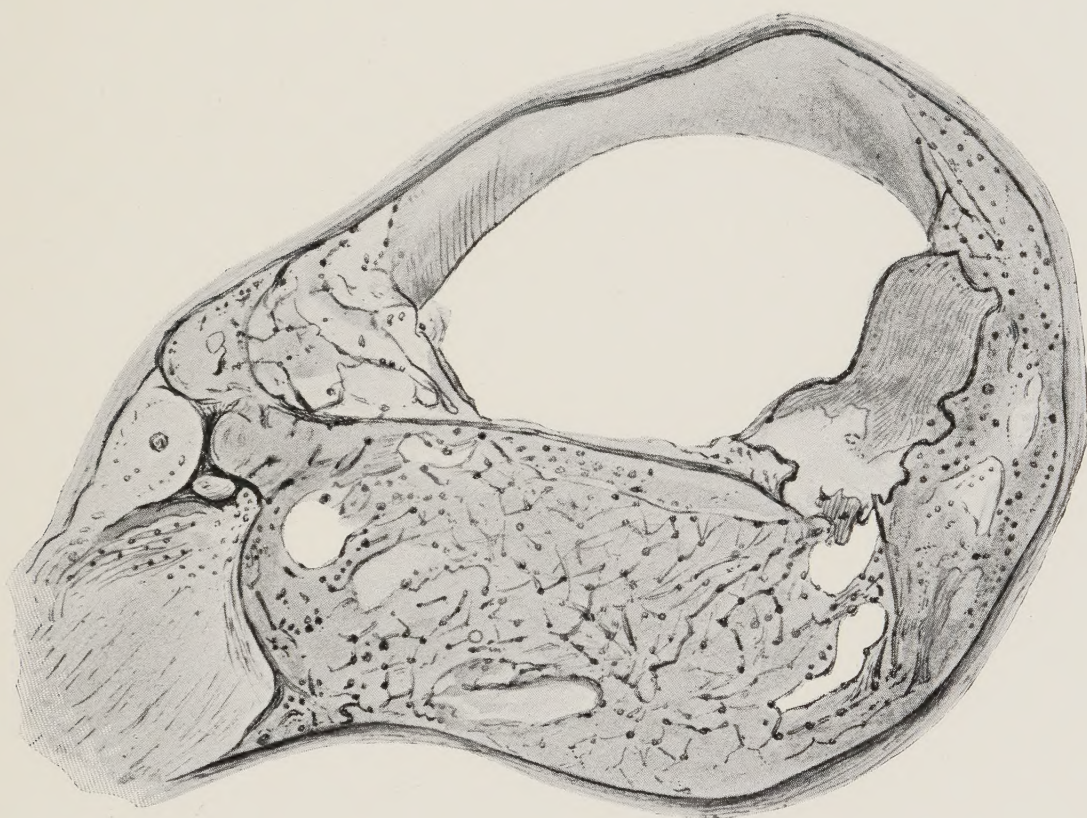
INTERNAL EAR AND NERVE

54. Bonnier, Nouvelle iconographique de la Salpêtrière. Rep. A. of Otol., 1900.
55. Bruehl, Deutsch. Otol. Gesellsch., June, 1907. Rep. Arch. of Otol., 1907.
56. Byrant, Am. Journ. of Dermat. and Gen. Urin. Dis. : St. Louis, 1906, x.
57. Burnett, Polyclin. : Philad., 1885.
58. Collet, Congr. Franç. de méd. interne, 1895.
59. Collins, Brooklyn Med. Journ., 1905, xix.
60. Crockett, Boston Med. and Surg. Journ., 1897.
61. Dench, Arch. of Otol., 1902.
62. Friedrich, Verhandl. der Deutsch. Otol. Gesellsch., 1897.
63. Habermann, Arch. f. Ohrenh., xxxiii.
64. Hermet, Union Méd., 1884, lxxxvi.
65. Lannois, Ann. des mal. de l'or., 1906.
66. Lerner, Klin. therap. Wochenschr., 1896.
67. Manasse, Arch. of Otol., 1903.
68. Mayer, Arch. f. Ohrenh., lxxii, 1.
69. Moos, Arch. f. pathol. Anat. und Physiol. : Virchow, 1877.
70. Moos and Steinbrugge, Zeitschr. f. Ohrenh., 1884-5, xiv.
71. Politzer, Wiener Med. Blätter, No. 4, 1882.
72. Renaud, Laryngoscope : St. Louis, 1906, xvi.
73. Roosa, Arch. Dermatol. : N. Y., 1874-5, i.
74. ——— Congr. Internat. Otol. Soc. : N. Y., 1876.
75. ——— Arch. of Otol., 1879.
76. ——— Zeitschr. f. Ohrenh., 1881.
77. Rosenstein, Internat. Centralblatt f. Ohrenh. : Leipz., 1905, iii.
78. ——— Arch. f. Ohrenh., 1905, lxxv.
79. Webster, Arch. of Otol., 1885.

HEREDITARY SYPHILIS

80. Politzer, Diseases of the Ear.
81. Habermann, The Syphilitic Affections of the Hearing Organ : Jena, 1896.
82. Alt, Wien. Klin. Rundschau, 1897.
83. Baratoux, Progrès méd., October, 1887.
84. ——— Trans. Ninth Intern. Congr., 1887.
85. Cassells, Glasgow Med. Journ., 1882.
86. Dalby, Lancet, 1877, i.
87. Downie, Arch. of Otol., 1896.
88. Gradenigo, 66th Congr. Germ. Nat. and Phys., 1894.
89. ——— Arch. Ital. d'Otol., 1894.
90. Hutchinson, Arch. of Surg., 1897.
91. Hutchinson and Jackson, Med. Times, 1861, ii
92. Kipp, Tr. Am. Otol. Soc., 1881, ii.
93. Knapp, Arch. of Otol., 1880.
94. Moos, Zeit. f. Ohrenh., 1882, xi.
95. Mygind, Nord. Med. Arch., xxvii, 7.
96. Pierce, Trans. Internat. Congr. of Med. : London, 1881, iii.
97. Pomeroy, N. Y. Med. Journ., 1885, xli.
98. Pooley, Arch. of Otol., 1898.
99. Pritchard, King's Coll. Hosp. Rep., 1895-6.
100. Pritchard and Cheatle, Arch. of Otol., 1896.
101. Rosenstein, Arch. f. Ohrenh., 1905.
102. Schwabach, Deutsche Med. Wochensch. : Berlin, 1883, ix.
103. Stiel, Monatsch. f. Ohrenheilk., 1895.
104. Wilson, N. Y. Otol. Soc. Report. Arch. of Otol., 1904.

PLATE XLV



Cross-section of first turn of cochlea in a case of tertiary syphilitic deafness, showing proliferation of the lining periosteum of the scala tympani and disorganization of Corti's organ. (After Manasse.)

SYPHILIS IN THE UPPER AIR-
PASSAGES

BY

ST-CLAIR THOMSON, M.D., F.R.C.P., F.R.C.S.

CHAPTER XVIII

PRIMARY AND SECONDARY SYPHILIS OF THE NOSE

THE study of syphilis in the nose and throat is interesting and important for many reasons.

Lesions in the throat are regular manifestations of the disease in its secondary stage ; the appearances of syphilis in this area of the body are not always typical ; the diagnosis is frequently difficult ; the progress may be alarmingly rapid ; the results in serious or neglected cases might lead to lifelong impairment of health and usefulness ; while, in many doubtful cases, the diagnosis of a syphilitic infection may be absolutely settled by a glance into the nose or throat.

ACQUIRED SYPHILIS may attack the nose in the (1) primary, (2) secondary, or (3) tertiary stages of the disease.

PRIMARY SYPHILIS OF THE NOSE

This is a rare affection, twice as common in males as in females. Amongst 100 extra-genital chancres the nose is the site of inoculation, on an average, in three cases.¹ Six cases have been seen by one observer,² but others with long experience have never seen a single case. A bibliography of published cases is given by Tissier,³ and Loeb has collected references to 225 published cases.⁴ The usual site of inoculation is the skin lining the vestibule of the nose (Plate XLVII).

It occurs more rarely on the floor and adjoining surface of the septum—in fact, it occurs in the vascular area, which is frequently irritated by those who have the dirty habit of picking their noses.

The method of inoculation is generally indirect, i. e. by the finger. It may also be carried by surgical instruments, by the bite of a syphilitic child, or by the use of an infected snuff-box.

Medical men, have, unfortunately, inoculated themselves in this region when they have not employed proper precautions after examining a patient.⁵

Symptoms. About the third or fourth week after inoculation, the patient begins to notice irritation, thickening, obstruction, discharge, and disfigurement at the end of the nose. A hard, indurated, irregular infiltration forms there, with a deep ragged ulcer, coated with a little discharge. The infiltration may form a fungating mass, the nasal passage may be considerably narrowed, and there may be epistaxis and fibrinous sloughs. There are neuralgic pains, sometimes intense, in the head and eye on the same side. The temperature may be raised. The sore, under ordinary circumstances, tends to heal up in six to ten weeks, and may do so without leaving any scar behind. The septum, if attacked, does not necessarily perforate. Much more characteristic than the appearance of the sore, is the development of a gland in the submaxillary region on the same side. This soon reaches the size of a large almond or even a hen's egg, and is noticeable from the fact that its enlargement and induration are out of proportion to the extent and history of the ulcer. The infiltrated gland is hard, smooth, and indolent. The pre-auricular gland also becomes marked, and if the chancre is situated on the septum

there may be infiltration of the pharyngeal glands on the same side.

Diagnosis. The recognition of syphilis in the nose is frequently overlooked. A correct diagnosis often fails to be made, as it does not resemble the characteristic appearance of a chancre, and as medical men are not generally on the look out for it in this region. The usual mistake is to regard it as some form of malignant growth. The differentiation is generally made by the progress of the case. Thus, with simple measures of cleanliness, a syphilitic sore will generally improve, whereas a malignant growth tends to steadily increase. The age at which specific infection is contracted is comparatively early as a rule, while malignant disease is rare before middle life. The enlargement of the glands is strikingly earlier and more marked than with a malignant growth of the same size and age. In cases where there is a fungating mass in the vestibule, with pain and swelling of the cheek, the condition may readily be mistaken for a sarcoma.⁶

In some cases antisyphilitic treatment must be tried as a diagnostic test, and in others a portion of the growth may be removed and examined under the microscope. The serum test should be employed in suspected cases (vol. iii, p. 243-266).

Lupus and lupoid tumours are distinguished by their slow history, microscopical appearances, and the presence of similar lesions elsewhere.

Leprosy and glanders are rare affections which attack the nose. The former is only met with in certain countries and in those who have lived there. It is very slow and painless, and nasal obstruction is trifling until the late stages of the disease. Glanders only attacks those exposed to contact with infected horses.

Prognosis. Under suitable treatment the primary infection will heal up without leaving any evident disfigurement. The constitutional symptoms are not worse than after infection through the genital organs.

Treatment. This should not be started until the diagnosis is established, when suitable treatment is carried out as with primary infection in other parts (vol. ii, pages 235-328). Locally the sore should be kept clean by the application of lotio nigra or 1 in 2,000 perchloride lotion. It may be dusted with iodoform powder, and the local stiffness removed by applications of ung. hydrarg. ox. flav.

SECONDARY SYPHILIS IN THE NOSE

Secondary syphilis in the nose is met with most commonly in the hereditary form of the infection (vol. i, p. 294). When the disease is acquired, secondary symptoms in this region rarely come under observation. This may be because they are generally overlooked. Some observers⁷ state that they never occur, while others hold that the secondary period in the nose is manifested either by erythema or papules.⁸

Symptoms. Secondary symptoms in the nose may be expected between six and nine weeks after inoculation, at the same time as the roseola or other rashes. On the Schneiderian membrane they give rise to a catarrh which has no characteristic symptom except its persistency. This 'syphilitic cold' is generally so slight that patients neglect it. If the Schneiderian membrane is examined the turbinals will be found enlarged, though not so markedly as in coryza. The mucosa is copper-red, particularly on the lower part of the septum. Erythema may occur in patches (Seifert) particularly on the middle turbinal. Sneezing is not marked, secretion is

less than in ordinary catarrh, and stenosis is not so complete. It may cause eczema of the vestibules. Mucous patches are very rare, but have been described as occurring on the anterior end of the septum and inferior turbinal. Suspicious fissures may be found in the vestibules. These, with the added secretion of eczema, may lead to the formation of stiff crusts occluding the nares.

The appearance of papules in the nose has been disputed. Mucous patches certainly are very rare and in great contrast to what occurs in the pharynx. The explanation of this difference is that in the nose the ciliated epithelium is readily shed, whereas in the throat the pavement epithelium necroses but still adheres. Hence, also, the papule only occurs in the nose in Fournier's 'type érosif'.

Diagnosis. Generally this is not made until confirmatory evidence is detected in the pharynx or on the skin.

Treatment. Local treatment is seldom called for, as mercurial lotions only aggravate the rhinitis, and may damage the sense of smell. It is, therefore, sufficient to prescribe some simple, warm, alkaline nose lotion, and a weak mercurial ointment. A suitable nose lotion is made by dissolving a tablet containing five grains each of borax, bicarbonate of soda, salt, and white sugar in three or four ounces of warm water.

CHAPTER XIX

TERTIARY SYPHILIS OF THE NOSE

THIS is the most common form of syphilitic infection found in the nasal cavities. It is important to recognize it early, as the disease sometimes causes extensive destruction with remarkable rapidity. The inconvenience and distress of neglected cases may leave behind irreparable damage, and cause unsightly disfigurement. The extension to the roof of the nose may lead to loss of life, by invading the brain.

The nose is found to be affected in 2·8 per cent. of syphilitic subjects in the post-mortem room.⁹

Etiology. Tertiary lesions may appear in the nose within one year from the date of infection, although they are rarely met with before the fifth year of the disease. The time of onset, according to Michelson's and Tissier's statistics, is from one to three years from the date of infection. On the other hand, there is no limit to the period at which they may make their first appearance, it being not uncommon for twenty or more years to elapse between the primary infection and the development of tertiary nasal symptoms. According to some observers they have occurred within a few months of the infection and before secondary symptoms have disappeared.¹⁰

Pathology. Syphilis in the nose may appear in the form of—

- (a) Gumma.
- (b) Ulceration.
- (c) Perichondritis and necrosis.
- (d) Syphilitic ozoena or atrophic rhinitis.

In any case the gumma is the foundation of these syphilitic manifestations. Its histological character resembles that in other regions (see vol. i, p. 139). It is deposited in the sub-mucous tissue, between it and the periosteum or perichondrium. The bony septum is a favourite site, but it may also attack the inferior turbinal, the floor of the nose, the nasal bones, or the alae nasi. Only slight symptoms are produced in the early stage of deposit, so that the condition is seldom detected before ulceration has taken place. It then comes under notice as an 'ulcerating gumma'. Necrosis is not an inevitable development, but is very characteristic of tertiary syphilis of the nose.

Instead of a gumma, it is not unusual to meet with a diffuse gummatus infiltration which may undergo chronic ulceration.

Symptoms. (a) *The gumma*, and (b) *ulceration*. The process may have made some progress before the patient seeks advice on account of nasal obstruction, pain, and discharge. The eyelids may become puffy, and the face swollen and tender. These symptoms may be preceded by headache and neuralgia, which is generally worse at night, and the patient's complaint of nasal obstruction is often out of proportion to the degree of stenosis. Doubtless this is because there is no remission in the intensity of the turbinal swelling, as there is in cases dependent on simple catarrh. Obstruction may give a nasal tone to the speech. The pain may be referred to the nose, the forehead, or the head generally; it may be intense, and is always worse at night. These pains are generally relieved when the gumma breaks down and the discharge takes place. The discharge is thick, sticky, scabby, and somewhat offensive, though not so foul and characteristic as when necrosis takes place. Scabs are formed of more or less dry

crusts of muco-pus, and may be green, yellow, or blackish; and as they separate some epistaxis may occur. The sense of smell is blunted.

If the gumma occurs on the inferior turbinal, the end of the nose tends to become thick and bulbous. If it is deposited in the deeper part of the septum or the region of the nasal bones, pressure over them is painful and may reveal a slight oedema of the skin. This tenderness on pressure over the bridge of the nose is a diagnostic point of considerable value.

Syphilis of the skin of the vestibule may eat its way through the skin of the face, causing a perforation or entire destruction of the ala.

Examination. In the early stage, a gumma of the nasal mucosa is revealed by a deep-red, ill-defined tumour in one of the situations usually affected, but most commonly on the septum. It will feel firm when it is touched with a probe; cocaine does not cause a gumma to shrink.

As a matter of practice, the gumma seldom comes under observation before it has softened and ulcerated. When this occurs, a foetid odour from the nose may be the first thing noticeable. The nose may also require to be cleansed of secretion and crusts before the gummatous ulceration is revealed. It is then seen to be irregular in extent and outline, with overhanging, thickened and indurated edges; the base of the ulcer is deep and flat, and is frequently concealed by a tenacious, yellow slough. Bare bone can often be felt at the base of the ulcer, and should be sought for with a probe.

Gummatous infiltration. When the gumma is deposited in a more diffuse form, the symptoms are more obscure, and the diagnosis is naturally more difficult. The patient may only complain of constant nasal obstruction, with loss of smell, a little dis-

charge, and pain around the root of the nose. Examination may show the nose to be somewhat swollen and distended, but not inflamed. The nasal stenosis is more or less constant and is practically unaffected by the use of cocaine. In many cases little is to be distinguished inside the nose beyond deep congestion, as the inferior turbinal is often tightly pressed against the inflamed septum.

Concomitant symptoms of syphilis should be carefully looked for, as this condition is apt to be regarded as a chronic catarrh until its persistence calls for further investigations. This gummatous infiltration sometimes affects one or both nasal orifices. In that case the skin lining the vestibules is infiltrated, brawny, and ulcerated. The secretion is scabby and the orifice of the nose may be more or less completely obstructed. The skin at the end of the nose may be red, swollen, and tense. This condition may be mistaken for lupus, rodent ulcer, or malignant growth. It may lead to occlusion or disfigurement, unless prevented by careful treatment.

A syphiloma is a rare form of sessile or pedunculated tumour found on the cartilaginous septum.¹¹

(c) *Perichondritis and Necrosis*. These occur at a later stage of the gummatous process. The invasion of the perichondrium or bone is suggested by swelling, tenderness, and pain, which is worse at night. The local obstruction and discomfort is relieved as soon as the bone is exposed, although this generally leads to the formation of crusts and the development of a foul odour. This objectionable smell is not caused by anything specific in the discharge, but it is due to the retention and putrefaction of dead tissue. The smell is somewhat different from that of ozoena, and spreads further, so that the patient is practically banished from society. Portions of

necrosed bone are sometimes blown out of the nose, or fall backwards to be hawked out from the throat. They may be black foetid masses, or be white and porous. They are recognized on examination as originating from the septum, the turbinals, or the floor of the nose.

Atrophic chondritis may attack the alar cartilages, and, by causing their absorption, leave only folds of skin around the nares.

Examination. After cleansing and cocainizing the nose, a probe is indispensable in detecting bare bone or cartilage. The two favourite sites for necrosis are far back on the vomer, or low down in the bony septum anteriorly. Syphilis in the latter area is often indicated by looking into the mouth for a watch-glass shaped swelling in the middle line of the hard palate, close behind the gum. Any soft swelling in this district with nasal symptoms is very suggestive of tertiary necrosis, and the diagnosis is certain if bare bone is felt, or a probe passes through from the roof of the mouth to the nose. Necrosis in the septum may involve the cartilage as well as the bone, and practically the whole partition may be destroyed. If the process extends close to the orifice, the end of the nose may subsequently retract, causing an unsightly disfigurement. When the necrosed bone is found loose in the nose, it is generally irregular, hard, black, and very foetid. Small perforations through the soft or hard palate may heal up, but larger perforations are permanent, and a syphilitic perforation of the septum seldom or never closes. The gummatous infiltration slowly contracts, particularly in untreated cases, and leads to the disfigurement so often associated with this affection (Plate XLIX). It is generally thought that the nose falls in because the support of the septum is removed. But, like all bridges, the span of the nose is supported

by the arches on each side and not by the prop in the centre. The septum can be almost entirely removed in surgical operations, and yet the bridge of the nose does not collapse. As a matter of fact it does not fall in immediately after a portion of the septum has necrosed. The bridge of the nose falls down gradually, and this collapse is due in such cases to the steady contraction exerted by the shrinkage of syphilitic scar tissue. This disastrous result can generally be avoided by vigorous early treatment, even although a large perforation may still remain permanently in the septum.

When caries attacks the nasal bones they are destroyed by a molecular necrosis, and the sinking in of the arches of the bridge leads to external disfigurement.

Syphilitic necrosis may affect the walls of the nose, invading the superior maxillae, destroying the lachrymal canal, or leading to exfoliation of large pieces of the ethmoid or sphenoid. Portions of these bones may become loose and fall into the throat, and in this way the cranial cavity may be exposed and fatal meningeal complications may ensue.

(*d*) The term 'syphilitic ozoena' is still applied to some forms of tertiary diseases of the nose, but it should be abandoned, as it only leads to confusion and the term 'atrophic rhinitis' is more suitable. Atrophic rhinitis is often left as a permanent legacy of syphilitic changes in the nasal cavities. Owing to the destruction of ciliated epithelium and cavernous erectile tissue, the dry surfaces become coated with crusts and scabs unless constantly kept clean.

The retraction when the septum is affected will, as already described, drag down the bridge of the nose, and the nasal bones may be destroyed and cave in. The uninjured vestibules may still remain erect, but, being tilted upwards and back-

wards, they give the well-known 'saddle-back' or 'frog face' appearance so frequently regarded as characteristic of this disease.

Diagnosis. In many cases the symptoms described will render the diagnosis easy. In other instances, all the confirmatory indications must be carefully looked for. It is well to remember that necrosis in the nose is almost unknown except in connexion with syphilis. Hence the discovery of dead bone, and the recognition that it is not a foreign body or rhinolith, will at once settle the diagnosis.

In ordinary ozoena, the odour is different, the mucous membrane is not ulcerated, and the bones are never necrosed.

Lupus is sometimes mistaken for syphilis, but it is a more indolent disease without the characteristic odour, and generally with coincident lesions of the skin. From malignant disease, the diagnosis is sometimes made with greater difficulty, but the latter is more strictly limited to one side; the growth is fleshy; the odour is not characteristic; and there is no necrosis.

Epistaxis is a frequent symptom of cancer of the nose; the microscope helps us to recognize it; and the administration of antisiphilitic remedies will be without avail.

It need hardly be insisted on that all perforations of the nasal septum are not consequent on syphilis, yet the mistake is still too frequently made. Apart from the perforations caused—accidentally or on purpose—by surgical measures for the correction of deformities, the septum may be perforated by simple traumatic ulcers, lupus, enteric, and possibly rheumatism. But in none of these diseases is there destruction of the bony septum. A syphilitic perforation may, rarely, be limited to the cartilaginous portion, but in the great majority

of cases it is the result of necrosis of part of the osseous septum. It may involve part of the cartilage as well.

Prognosis. This will be founded on many factors: the age, constitution, and circumstances of the patient; history of alcoholism; the presence of renal or other organic disease; the history of delayed or inefficient treatment; and the site, extent, and nature of the intranasal lesion.

If external deformity of the nose has taken place, the patient will be advised that it can only be remedied by an operation, the employment of paraffin, or some artificial prothesis. If the bridge of the nose has not collapsed, disfigurement can generally be avoided by proper and energetic treatment. Patients should be warned that syphilis in the nose sometimes progresses very rapidly, and that, as tertiary lesions in this region are always serious, they should be prepared to submit themselves at once to prolonged treatment.

Treatment. As in other affections of the upper air passages, the treatment should be both general and local, but the former is of primary importance in every case. The local treatment in some instances can be dispensed with. In many cases it renders the patient more comfortable, and hastens recovery; while in a few it is of great importance.

For the prompt relief of tertiary symptoms in the nose, and in all cases in which the gumma has not yet broken down, or where gummatous ulceration is taking place slowly, the administration of iodide of potassium is indicated. The dose is small to commence with, but it may require to be increased steadily to 30 or even 60 grains three times a day. But mercury is called for in all cases, both for the relief of symptoms and to prevent the cicatricial contraction which generally results in untreated cases. The selection of remedies, doses, and methods

is described in vol. ii, p. 260-339. Here it is sufficient to say that if symptoms are not urgent they should be first relieved by iodide of potassium, to be followed by the administration of mercury through the skin. When the lesion in the nose is more threatening, iodide of potassium should be given in larger doses. If this disagrees, or if the case does not respond to the drug, we should have recourse to the administration of mercury. In cases with rapidly destructive lesions, it is well to commence with a soluble salt of mercury or with calomel, and when the progress of the disease appears to be checked, a steady course of inunctions or intramuscular injections of grey oil is started.

Local treatment. The nose should be kept as clean as possible by frequent and copious irrigations of a cleansing alkaline lotion (p. 291). A spray is seldom powerful enough to detach crusts and cleanse the depth of the nose. The warm alkaline lotion is better sniffed through the nostrils, or syringed with a 3-oz. pear-shaped rubber syringe, or carefully injected from a Weber's nasal douche. Where there is considerable destruction of mucous membrane, the Schneiderian membrane is less sensitive, and we may then be less chary in employing some antiseptic to correct the foetor. Any of the compound antiseptics, such as listerine, sanitas, phenosalyl, formolyptol, euthymol, &c., may be added to the alkaline lotion. If the interior of the nose is very foul, it can be cleansed with peroxide of hydrogen (10 vols.) or perhydrol (3 per cent.), used on cotton-wool mops or added in these strengths to the alkaline nose lotion. In very septic cases, and when ulceration has destroyed much of the interior, deadening the sensitiveness and the sense of smell, we can employ stronger lotions, such as corrosive sublimate (1 in 2,000) or lotio nigra in combination with

chlorate of potash lotion. It is customary to insufflate antiseptic powders, such as iodoform, europhen, dermatol, aristol, loretin, formidin, &c. But these powders are apt to form crusts which are difficult to remove, and it is better to employ them only in cases with intolerable foetor. If the cleansing of the nose is followed up by the free use of an oily spray (menthol grs. 5, paroleine 1 oz.) crusting is less likely to take place, and a mercurial ointment will be useful if there is any ulceration in or near the vestibules. When an ulcer in the nose has been well cleansed, healing is promoted by painting its floor and edges with chromic acid (10 grs. to the oz.), sulphate of copper (20 grs. to the oz.), or nitrate of silver (10-20 grs. to the oz.). An application once or twice a week is sufficient.

If crusting and foetor are very troublesome, it is a good plan to pack the nose lightly for twelve or twenty-four hours with a one-inch wide ribbon gauze. This gauze can be plain, or prepared with iodoform or the double cyanide of mercury. The latter should be well wrung out of 1 in 40 carbolic lotion before use. This packing stimulates the glands in the nose, loosens scabs, and promotes healing. When the tertiary involvement of the nose is still more malignant, when the foetor is extremely offensive, or when for any reason the other methods of administering mercury are unsuccessful, it may be well to let the patient inhale the fumes of sublimed calomel through the nostrils (vol. ii, p. 216).

A sequestrum in the nose demands active interference. Its presence maintains foetor and retards healing. It has been suggested that dead bone should be promptly removed from the nose at all costs. This is unwise. The expulsion should be hastened, but not in a reckless manner. Indeed,

if the sequestrum is fixed, we must wait until it is loosened. Its detachment is hastened by the general administration of mercury and by local treatment. As soon as the probe detects any movement in the dead mass, we should proceed to assist in its extraction. After the application of adrenalin and cocaine, the necrosed bone is raised from its bed by gentle leverage and to-and-fro movements. Various polypus and other strong-toothed forceps may be required. Several sittings may also be necessary, as proceedings are often arrested by severe haemorrhage. When the necrosed bone is quite loose in the nose, it may be found too large for extraction through the nostrils. For instance, a mass as large as the body of the sphenoid has sometimes necrosed *en bloc*. In such cases, the dead bone must be broken up in the nose, and then removed piecemeal through either the anterior or posterior nares. Sometimes such an operation as that of Rouge's may be required to get out a large mass.

POST-SYPHILITIC AFFECTIONS OF THE NOSE

A syphilitic process may leave the following, amongst other conditions, behind it in the nose :—

- (a) Stenosis and atresia of the vestibules.
- (b) Atrophic rhinitis.
- (c) Perforations of the palate.
- (d) External deformities.

(a) Tertiary infiltration and ulceration of the skin lining the nasal orifices not only causes destruction of tissue, but is very prone to cause contraction and lead to more or less obliteration of the natural orifices. This can usually be avoided in cases which are promptly treated. If stenosis is threatening, small lengths of rubber drainage tube, of as large a bore as possible,

are well smeared with some mercurial ointment and worn in the vestibule of the nose.

(b) The condition of atrophic rhinitis left by syphilis is generally incurable, but the patient can be relieved of discomfort by a daily *toilette du nez* carried out as described on p. 300.

(c) Perforations of the hard palate may heal up, if they do not exceed half a centimetre in diameter. When larger than this they are permanent, and the condition is best relieved by wearing some form of dental tooth-plate.

(d) When the central columella of the nose is destroyed as well as the adjoining part of the septum, retraction is apt to pull down the end of the nose, reducing the vestibules to two small circular orifices and causing an unsightly deformity.

A plastic operation followed by the use of dilators may be required to remedy this. But all these operations for the correction of deformities caused by syphilis are generally very disappointing, owing to the low vitality of the flaps and the tendency of the scar tissue to contract. This tendency may continue in spite of a full course of general treatment. Some cases of unsightly deformity can be concealed by wearing an artificial nose, either stuck on to the skin at the root of the nose or fixed on a spectacle frame.

Depressions of the bridge are in many cases completely remedied by careful hypodermic injection of paraffin (see Plate L, Figs. A and B).

CHAPTER XX

SYPHILIS OF THE PHARYNX, NASO-PHARYNX AND TONSILS

IN this region syphilis may be met with in (*a*) the acquired or (*b*) the hereditary form of the disease.

Acquired syphilis is met with in the pharynx in any of the three stages of the disease.

Hereditary syphilis occurs either in the secondary or tertiary forms.

PRIMARY SYPHILIS OF THE PHARYNX

Etiology. Recent literature tends to show that a primary chancre is not so uncommon in the pharynx as was formerly thought. Morell Mackenzie, in his large experience, saw only seven cases¹²; but the records of 290 cases of primary disease of the tonsils and pharynx have recently been collected by Joseph Kaesbohrer.¹³

Primary lesions of the tonsils are somewhat more frequent in women. It should be remembered that infection can be conveyed as readily from a secondary mucous patch as from a primary sore. This may explain how contamination is conveyed by kissing; the use of infected domestic utensils (spoons, forks, &c.); the common use of such articles as pipes, tooth-brushes, glass blow-pipes, or musical instruments, and the use of unpurified surgical or dental instruments.

With regard to the last-mentioned possibility, it is well to remember that a tonsillotomy with an infected guillotine has been followed by a primary chancre,¹⁴ and that infection has

been carried to the naso-pharynx by an unpurified Eustachian catheter. Nurses have sometimes contracted the disease by sucking the feeding-bottles of infected infants.

The oro-pharynx is one of the most usual sites for 'syphilis insontium'. An analysis of 9,058 recorded cases of extra-genital chancres shows that 307 occurred on the tonsil.¹⁵

The tonsil is the most common site of the primary sore, but it also may be met with on the fauces, tongue, lips, or posterior pharyngeal wall. It has been found on the lingual tonsil and the epiglottis.

Symptoms. In many cases the symptoms complained of are so slight that the patient may not think it worth while to take advice. This may explain some of the cases where there is no history of a primary sore. As a rule the patient complains of discomfort in the throat with slight difficulty in swallowing. In a few cases, sore throat may be severe, earache may be complained of, and there may be headache, malaise, rigors, and a temperature of 104° F.

Examination. Contrary to what is frequently thought, the appearances of a chancre in the pharynx are wanting in the characteristics which are usually present in other regions of the body. The typical sore is obscured by the general inflammation of the tonsils. The whole gland is apt to be acutely inflamed and enlarged, while the sore is liable to be further concealed from view by stringy mucus. The sore varies in appearance. In some cases a syphilitic erosion or ulcer is discovered with difficulty, while in other cases there may be a fungating growth, a diphtheroid or membranous ulcer, or a sloughing or gangrenous sore. In any case, the induration round the sore, which is so characteristic in the genital region, is not a prominent symptom in ton-

sillitic chancres. On the other hand, it is the whole tonsil itself which becomes dense, firm, and hard. The glands at the angle of the jaw are always affected. They become enlarged, hard, and painful, but they are mobile, do not suppurate, and the skin over them is not inflamed or adherent.

There may be Eustachian obstruction and tinnitus.

Diagnosis. The disease is frequently overlooked because it is not anticipated. If the possibility of a primary syphilitic sore in the pharynx is kept in mind, the diagnosis is not very difficult. The factors which suggest the possibility of syphilis are :—

- (a) The affection of one tonsil only,
- (b) with enlargement and induration of the whole tonsil,
- (c) with early involvement of the submaxillary glands, and
- (d) occurring in a young subject.

The symptoms, as a rule, are not acute ; there is generally a history of some weeks' discomfort before the patient seeks advice ; and the glands are indolent and show no tendency to suppurate.

In many cases the diagnosis is a delicate matter, and often remains in doubt until the development of secondary symptoms confirms the suspicion. But assistance may be obtained by the discovery of the *Spirochaete pallida* or a positive serum reaction (Wassermann test).

Amongst the affections which may be mistaken for primary syphilis are—malignant disease, chronic tonsillitis, diphtheria, tubercle, or Vincent's angina. Even after the syphilitic character of the lesion has been settled, it may be necessary to distinguish it from a syphilitic ulcer, or from a breaking-down gumma.

Cancer in the pharynx generally affects an older subject, increases more rapidly, causes earlier and more marked glandular enlargement, and is apt to be accompanied by bleeding and infiltration in the neighbouring tissues. The removal of a portion of the growth for microscopic examination, the serum reaction, and the administration of antisymphilitic remedies, may be required to elucidate the diagnosis. Lymphosarcoma—occurring on one side and often in young subjects—may present some difficulties, which can only be resolved by the serum reaction or the development of confirmatory symptoms.

Chronic lacunar tonsillitis always affects, more or less, both tonsils, and the glands on both sides are enlarged. There is more local discomfort and general malaise. Diphtheria, in the majority of cases, is as easily diagnosed. It is seldom mistaken for syphilis, but, on the other hand, patients with syphilis of the pharynx are not uncommonly sent to a fever hospital. The general symptoms, the results of bacteriological examination, and the progress of the case should prevent such mistakes.

Tuberculosis is rarely met with in the pharynx, and then only in the complications of the later stages of pulmonary phthisis. The fact that it tends to invade the uvula and soft palate, the history of the case, and the general condition of the patient will settle the diagnosis.

Vincent's angina, or ulcerated membranous tonsillitis, is a comparatively rare affection. It is frequently mistaken for syphilis, generally the tertiary form. The detection of fusiform bacilli and spirilla, as well as the history and progress of the affection, will indicate Vincent's angina.

A primary infection is distinguished from a tertiary ulcer

by being more superficial, by the induration of the whole tonsil, and by the enlargement of the cervical glands. A tertiary lesion is less apt to be initiated by pain ; glandular enlargement is not marked : there may be a history as well as stigmata of the disease ; and, finally, the tonsil is not a favourite site for a gumma.

Prognosis. A primary sore in the pharynx when untreated may last from one to eight months. The enlargement of the glands may persist for some time, even after treatment.

Treatment. If the character of a primary chancre of the pharynx is positively established, it should be vigorously treated with a sublimate gargle (1 in 500 or 1 in 1,000), insufflation of calomel, or local inunction of calomel ointment (1 in 3).

Locally, the mouth and teeth should be kept very clean, and the pharynx cleansed with warm alkaline lotions. Gargles of chlorate of potash, corrosive sublimate (1 in 5,000), listerine, &c., may be employed. If the surface is coated or sloughy, it can be cleansed by mopping with peroxide of hydrogen. The sore itself should be painted with nitrate of silver (20 per cent.), or chloride of zinc (3 per cent.). The cleansed surface can be dusted with calomel. Perhaps the simplest and most effective local treatment is the following :—

The base of the sore is cleansed, dried, and then moistened with pure carbolic acid from the end of a glass rod. The application is painless, and it can be repeated when the eschar separates.

General treatment should be vigorously initiated as soon as the diagnosis is settled (vide vol. ii, pp. 253–339).

SECONDARY SYPHILIS OF THE PHARYNX

The secondary manifestations of syphilis in the pharynx deserve careful study. These changes in the pharynx occur after inoculation in any part of the body as a regular feature in the cycle of the disease.

The secondary lesions are capable of transmitting infection. They are generally so characteristic that they help to settle the diagnosis in conditions which would otherwise be obscure.

Invasion. The symptoms in the pharynx appear, in common with other secondary symptoms, between five and eight weeks after the date of infection ; but it is extremely important to remember that the secondary phenomena may recur in later stages of the disease, and that they tend to reappear at irregular periods. They are, perhaps, most frequent in the first and second years after infection. They are more common in males than in females, and are undoubtedly worse in the mouths of smokers.

Symptoms. The discomfort caused by secondary syphilis in the throat is frequently so slight that patients have little of which to complain. Hence infection may be innocently spread by patients at this stage of the disease.

As a rule there may be some sore throat with dryness and discomfort.

Dysphagia is generally slight, but according to some observers it is a constant and persistent symptom.

Examination. Secondary syphilis occurs in the pharynx as—

- (a) Syphilitic erythema and
- (b) The mucous patch.

It is not uncommon to find—

(c) A general hypertrophy of the lymphoid tissue of all the four tonsils.

(a) Syphilitic erythema appears about the same time as rashes on the skin, that is, from six to twelve weeks after the primary infection. It may be found on any part of the tonsils, pharynx, or soft palate, where it may occur in isolated and generally symmetrical patches, or it may occupy the entire surface of these parts.

The erythematous patch is dusky red with a well-defined margin. This abrupt ending is generally well marked at the junction of the soft and hard palates. It may be limited to the anterior pillars in the neighbourhood of the soft palate. The fact that the redness never fades away gradually into the healthy tissues, and that it tends to be symmetrical, is quite characteristic. The erythema should always be inspected by direct daylight, as it may escape detection under artificial light. The erythema is accompanied by a certain amount of catarrh, and it may extend to the Eustachian tubes, causing deafness and tinnitus. Both tonsils are slightly enlarged, sometimes sufficiently to cause nasal obstruction and produce the tonsillitic voice.

(b) The mucous patch, plaque, or papule, is generally met with after the appearance of the skin rashes; but, as already mentioned, it may precede the rash, or occur later in the disease, and may even follow tertiary manifestations. I have seen a mucous patch present in the throat at the same time with a gummatous ulceration eight years after the appearance of tertiary symptoms and fifteen years after the date of the primary infection. It is said that a mucous patch may develop while the primary sore is still present. On an

average, its appearance may be looked for about the fourth month.

The mucous patch has a characteristic appearance, difficult to describe, but readily recognized by the trained eye (Plate XLVIII, Fig. A). It occurs chiefly on the uvula, pillars of the fauces, the neighbouring soft palate, and the tonsils; but it is also met with on the lips, gums, inside of the cheeks, and the margins of the tongue. It is characteristic in that it rarely if ever attacks the posterior pharyngeal wall. With a mirror, it can be seen on the posterior surface of the soft palate, the mouth of the Eustachian tube, and the pharyngeal or lingual tonsils.

At first the mucous plaque is a dusky-red, slightly raised patch which soon undergoes a superficial necrosis. The patch is very slightly raised above the surface. It is surrounded by a narrow, inflamed areola. Its surface is flat, and with a milky, opaline, slightly translucent appearance which has been compared to a snail's track (Plate XLVIII, Fig. A). In some cases the patch becomes bluish, or dirty grey. It may even become sodden, so as to suggest the false membrane of diphtheria, but it is much more adherent, and does not tend to spread. In some neglected cases the patch will become swollen and sprouting, as in the condylomata of other regions. The mucous patch is said to be less marked in females. It is certainly worse in the mouths of smokers.

(c) The palatine tonsils have frequently disappeared at the age when secondary syphilitic troubles are most frequent, but if still present they are very apt to undergo enlargement, and as the lingual tonsils share in this hypertrophy the condition may account for some of the symptoms of sore throat and dysphagia. Luschka's tonsil (the adenoid tissue of the

naso-pharynx) may also swell up, giving rise to nasal obstruction and some of the symptoms of adenoids.

Diagnosis. As already pointed out, the appearances of the erythema and the mucous patch are fairly characteristic, but confirmation should be sought for in the presence of skin eruptions, enlarged suboccipital glands, pains in the bones, headache, loss of hair, malaise, &c. Confusion can only take place when, as sometimes happens, secondary syphilis is accompanied by a rise of temperature.

It will be remembered that the typical manifestations of secondary syphilis are not most common on the tonsils themselves. As a rule, absence of marked pain or general reaction, and a slow onset of pharyngeal symptoms will distinguish secondary syphilis in the pharynx from other forms of sore throat.

The patches of aphtha are more of a canary-yellow colour and are not symmetrical. Any suspicion of diphtheria can be eliminated by a bacteriological examination.

The diagnosis of a secondary syphilitic enlargement of the tonsils is founded on the observation that it occurs in adults, that the tonsils remain swollen longer than in a simple case of tonsillitis, and that the glands are more hard than tender.

Prognosis. When left untreated, symptoms may persist in the pharynx from two to six weeks or even continue for two months. As already remarked, they may appear at any time within two years from the date of infection or even later. They disappear quickly under treatment.

Treatment. Patients should be warned of the danger of conveying contagion in any of the ways mentioned on page 30. A medical man must guard himself carefully from any infection coughed in his face or adhering to his hands. It is well to keep

a special set of instruments for syphilitic cases and to sterilize them immediately after use.

The general treatment is of primary importance, but attention to local measures should relieve anxiety, lessen discomfort, and diminish the risk of contagion.

It is very important for the patient to abandon entirely the use of tobacco, and alcohol should be taken very sparingly. The mouth, teeth, and gums should be kept very clean by the use of the tooth-brush and alkaline and antiseptic mouth-washes. One of the best gargles is made of equal parts of *lotio nigra* and chlorate of potash gargle, or corrosive sublimate in a strength of 1 in 5,000. The mucous patch itself should be dried and painted with chromic acid (10 to 20 grains to the ounce), tincture of iodine or nitrate of silver (10 to 20 grains to the ounce). In more virulent forms calomel may be insufflated, or the powder may be sublimed and inhaled. In some cases it is well to refrain from ordering the usual remedies and to trust to such soothing applications as *glycerinum acidi borici*. General treatment is the most important factor in causing the disappearance of local symptoms.

TERTIARY SYPHILIS OF THE PHARYNX

Tertiary syphilis does not always attack the pharynx in a characteristic form. Its diagnosis may not be easy. Early recognition and prompt treatment are highly important, as they will generally prevent the grave sequelae which might otherwise be left behind.

Invasion. Tertiary symptoms may appear within a few months of the primary infection. The usual date of onset is between the eighth and fourteenth year after infection.

Their first appearance may be delayed for many years, and they may reappear at any subsequent period.

Varieties. The tertiary manifestations in the pharynx may be studied under the following three groups :

1. The gumma.
2. Diffuse gummatous infiltration.
3. Serpiginous ulcer.

1. The gumma is the pathological basis of all three groups. It may occur singly or may be deposited in several places at the same time. Owing to this, and to the fact that a gumma does not follow any one typical course in this region, the appearances are apt to be somewhat varied.

The favourite situations are the roof of the hard palate, the soft palate, the posterior and lateral walls of the pharynx, the base of the tongue, and the roof of the naso-pharynx. A single gumma is less frequently met with on the tonsils, although gummatous infiltration is fairly common.

The usual stages of the gumma are :

- (a) Formation, (b) softening, (c) ulceration, and (d) cicatrization.

Under favourable circumstances, the process may be arrested and the three later stages may be wanting.

The stage of deposit or infiltration is apt to be slow and insidious, causing such slight symptoms that it does not attract attention. In a typical form it occurs as a bright-red, raised swelling, growing slowly ; but when softening commences in the centre, destruction may take place rapidly. On the roof of the hard palate, the gummatous nodule generally affects the middle line at a short distance behind the incisor teeth and at the junction of the premaxilla with the palatal processes of the two maxillae. It is not uncommonly

associated with a similar condition on the floor of the nose. As the gumma breaks down, an indolent ulcerating crater is formed, in which the probe will detect bare bone and will, not uncommonly, pass through an opening into the floor of the nose (Plate XLIX).

When the soft palate is affected, the gumma by preference attacks the middle line (Plate XLIV, Fig. A). The deposit lies more towards the posterior surface, so that the soft palate is bulged forwards towards the mouth with a bright-red shining swelling. The movements of the palate are much interfered with ; fluids tend to regurgitate through the nose, and there is much difficulty in clearing the throat of the festoons of mucus which hang about it. With the post-nasal mirror it will be seen that the gumma has broken down into a circular, indolent ulcer, with steep, thickened, and deeply congested edges. If not arrested, this ulcer later on communicates with the buccal surface of the soft palate, so that a probe can be passed through from one side to the other. A large perforation may be left, or the whole soft palate may be ulcerated and slough away (Plate XLV, Fig. A).

The posterior pharyngeal wall is also a favourite site ; here again it is generally in the middle line, and often above the level of the soft palate, so as to be out of sight unless examined by posterior rhinoscopy. In this region a smooth, soft, red swelling is met with. Resolution may take place ; otherwise the centre softens, fluctuates, and breaks down into an ulcer. This ulcer may penetrate as deeply as the vertebrae, exposing the spinal meninges, or ulcerating the large vessels, while the margins break down and extend all over the posterior pharyngeal wall. When this gumma coincides with the similar process described on the back of the soft palate, the two ulcerating surfaces

may come in contact, leading to adhesions which may end in complete pharyngeal stenosis. The gumma in the pharynx may also be deposited deeply below the periosteum, resulting in caries of the vertebrae and even laying bare the spinal cord.

In the roof of the naso-pharynx the gumma is met with in the area of Luschka's tonsil, where it ulcerates and causes much post-nasal catarrh. In this region there is not the same tendency to cicatricial stenosis as there is in the oropharynx.

Diffuse gummatous infiltration may occur almost anywhere. It is essentially of the same nature as the single gumma, and the two may occur together. A favourite site is along the lateral walls of the pharynx, in the posterior palatine folds. It not uncommonly invades the palatine tonsils, and as the tendency to break down is slight, it may be mistaken for malignant disease.

The *serpiginous ulcer* is generally an early manifestation of the tertiary period, and may even be associated with the presence of mucous patches. It may occur anywhere, but perhaps chiefly affects the soft palate and its neighbourhood. Its area is irregular; the edges are cleanly cut; the surrounding mucous membrane is congested or purplish. The ulcerating surface itself does not tend to penetrate deeply. It is superficial with no marked infiltration, and is often coated with a greyish-yellow slough. When this is cleaned off, the appearance is rough, non-inflamed, and somewhat eroded (Plate XLVIII, Fig. B).

Symptoms. The symptoms vary, and will depend on the situation, extent, and severity of the process. Pain may or may not be present; indeed, it is remarkable how much

destruction can take place in some throats before the patient considers his symptoms worth notice. In such cases a general uneasiness, slight dysphagia, and the difficulty of clearing the throat of mucus, are often the only things complained of. In other cases, nasal voice, regurgitation of fluids, pain radiating up to the ears, and inability to swallow anything but liquids, will soon lead to a deterioration of health. In severe cases, and in those who are worn out with excess of alcohol, bad food, dissipation, &c., the breath becomes foul, the tongue may be projected with difficulty, sleep becomes impossible, and the distress caused by dysphagia or inability to clear the throat may render the patient's condition so pitiable that the case may be mistaken for advanced malignant disease.

Diagnosis. Prompt diagnosis is of great importance as it will lead to the arrest of symptoms in the majority of cases. A history of infection may be disregarded, but in females much assistance may be obtained by any record of miscarriages. The typical characters of a gummatous ulcer are its thickened margin and slow progress. The latter must not be relied upon, as extensive destruction will sometimes occur within a week or ten days. As a rule there is no fever or enlarged glands, and the patient is able to walk about, which he could not do in such conditions as quinsy or diphtheria, with which the condition has sometimes been confounded.

An ulcer of any kind in the pharynx should always arouse a suspicion of syphilis, particularly if the base of the ulcer is covered with a dirty-grey slough and the margins are thickened. Indeed, it may be accepted that any ulcer in the pharynx is, in the large majority of cases, syphilitic in origin.

The two other forms of ulcerating deposit met with in this

region are those of lupus and malignant growths ; they are comparatively rare, while syphilis in the pharynx is common.

Epithelioma in the pharynx generally attacks the tonsillar region ; it occurs in elderly patients ; the glands are invaded early ; it does not improve under specific treatment ; and the microscope may establish the diagnosis.

Lupus is an extremely slow process, found on anaemic mucous membranes. The surface of a lupus ulcer is indolent, greyish, nodular, and coated with a gummy or yellow secretion. There is no distinct slough ; the walls are not so definite and vertical as in syphilis ; it infiltrates less deeply, and it has not the infiltrated reaction round about.

Lupus is generally distinguished by the fact that it is hardly ever met with in the pharynx without also being present in the nose, the larynx, or on the skin.

Confusion should never occur in mistaking syphilis for tuberculosis. The latter only occurs in advanced stages of pulmonary phthisis. It is extremely painful, and the sub-maxillary glands are generally involved.

From acute tonsillitis or peritonsillar abscess, tertiary syphilis is distinguished by its more chronic character, and the absence of acute dysphagia, large and tender glands, or tenderness to touch.

Actinomycosis is a comparatively rare affection, but is one which might give rise to some difficulty in diagnosis, as the hard infiltration and the ulcerated surface somewhat resemble a breaking-down gumma.

As actinomycosis is readily improved by the administration of iodides, we are unable to use the treatment test for distinguishing the two conditions. This differentiation will depend on the discovery of the ray-fungus in the discharge.

Glanders is also a rare affection, but one which is very apt to be mistaken for a malignant attack of tertiary syphilis. It only occurs in those who are exposed to contact with horses. When once the suspicion of glanders is aroused, it should be diagnosed by observing the joint affections, the enlarged submaxillary glands, the peculiar foetor of the breath, the abundant discharge containing the bacillus mallei, and the effects of injection of mallein.

Phosphorus poisoning only occurs in those exposed to this element.

In conclusion it may be necessary in doubtful cases to seek confirmation in the evidence of the disease elsewhere, in the detection of post-syphilitic scars, in the result of specific treatment, and in the serum or other laboratory tests (vide vol. iii, pp. 241-266).

Prognosis. The prognosis should be based upon the same factors as mentioned on p. 299, when the nose is attacked. Much will depend upon the stage at which the patient presents himself, but in some cases, in spite of the most active treatment, scarring and retraction may be inevitable. The patient should be advised not to neglect treatment, as, while some cases are indolent, there are others in which destruction takes place rapidly, and in which the affection recurs if treatment is discontinued too soon.

Treatment. The general treatment is of the utmost importance, and should be carried out promptly and energetically. Syphilis in this region is always a serious affection. It is not wise to allow of any delay or to be content with mild and slowly acting treatment. While the administration of iodides may aid in the absorption of deposits, the only reliable method for arresting the disease and preventing relapse, is to get the

patient rapidly under the influence of mercury administered through the skin (for the choice of methods, and the manner of administering them, the reader is referred to vol. ii, p. 253-339).

Local treatment is generally concerned in cleansing and soothing measures. The pharynx can be cleared of mucus by warm alkaline gargles. Foul or sloughing ulcers can be cleansed by mopping them with peroxide of hydrogen (10 vols.), and then painting them with chromic acid (grs. 10 or 20 to an oz.), nitrate of silver (grs. 10 to an oz.), or sulphate of copper. A chlorine gargle is very beneficial in gangrenous conditions, and the base of very foul ulcers may be touched with pure carbolic acid or acid nitrate of mercury. A gargle of chlorate of potash and *lotia nigra* is useful. Pain and other symptoms are treated as they arise.

POST-SYPHILITIC PHARYNGEAL AFFECTIONS

The mucous patch generally heals without leaving any scar behind. A serpiginous ulcer may leave a stellate cicatrix, which is often found on the soft palate, just above the junction of the pillars of the fauces. A gumma may be arrested before it breaks down, and then leaves nothing but a slight contraction. But the breaking down of a gumma and gummatous ulceration are only too apt to leave behind scarred tissue with the most unfortunate tendency to marked contraction. In this way the soft palate may be drawn up and deformed, and become more or less completely adherent to the posterior pharyngeal wall. Adhesion between the base of the tongue and the posterior pharyngeal wall may reduce the lower part of the oropharynx to a narrow orifice. The posterior wall of the pharynx may show every variety of scar, the chief characteristic being

their tendency to radiate from the middle line, and their white and fibrous appearance (Plates LI and XLVII, B). Perforations may be left through the pillars of the fauces, or through the soft palate. The gumma described as occurring in the middle line of the hard palate is very apt to leave behind it a free communication between the mouth and the nose.

Treatment. The treatment of these post-syphilitic affections is generally disappointing, for however satisfactory the immediate result of the treatment may be the onset of slow contraction is only too apt to occur later on, leaving the condition even worse than before. If the stenosis is not so marked as to cause much discomfort, it is wiser to leave it alone. In some cases, the daily passage of a bougie may arrest the process of contraction, but if mouth-breathing with all its drawbacks is marked, if ear troubles ensue, if the patient complains of the inability to blow his nose, some plastic operation may be tried. Before initiating any mechanical or operative measures for the correction of these post-syphilitic stenoses, it is well to make sure that the syphilitic process is arrested, and if there is any doubt upon this subject the patient should be submitted in the first instance to a thorough mercurial treatment.

Of the various operative measures which have been tried, the two following are the most satisfactory :

While there is still a passage from the pharynx up to the post-nasal space, but the palate is tethered down to the posterior wall on each side, Dundas Grant¹⁶ suggests that wires should be inserted through these lateral bands, as ears are pierced for ear-rings. When these 'ear-holes' are established, horizontal incisions are carried from them down to the free edges.

The idea is founded on the old operation for webbed-fingers, and is thus described by J. E. Nicholls.¹⁷

A rectangular, curved, cleft palate-needle is passed through the adhesion from behind forwards. This is threaded with silk and withdrawn, a thicker silk is attached to the first and drawn through, and knotted in a loop, and left in for one or two weeks. The little canal in which it runs will then have become cicatrized, and the loop of silk may be cut through and removed. A right-angled knife is carefully passed through the cicatricial canal and the tissue cut through to the middle line. In a few days the cut edges heal and the narrow band of cicatricial tissue at the apex of the cut prevents the tendency for them to unite again.

Under chloroform, and with the hanging head, W. G. Spencer separates the soft palate from its adhesions to the posterior pharyngeal wall, draws it forwards, and fixes it by two silk sutures to the muco-periosteum of the hard palate.¹⁸ Tilley carries out the same principle by threading the soft palate on both sides with strong silver wire which is anchored to the incisor teeth. The wires cut out in ten to fourteen days, but by this time considerable repair will have taken place over the raw surfaces from which the adhesions had been separated.¹⁹

After freeing the soft palate, H. B. Robinson prevents it from uniting again by the following method :

‘ A piece of lead plate is cut the full breadth of the nasopharynx and bent so that one arm rests on the dorsal surface of the soft palate, and the lower one on the buccal surface, the cut margin being received between the plates and apposed to the bend, being thus kept away from the pharyngeal wall.’

The piece of lead is kept in place by silk threads attached

to the four corners, two passing forward through the nostrils and two through the mouth. The lead plate is not removed for a fortnight.²⁰

Whatever method is employed to enlarge the stricture, dilatation must be kept up for some time by the frequent passage of the forefinger, a palate hook, or a dilatable bag.

CHAPTER XXI

SYPHILIS OF THE LARYNX

SYPHILIS of the larynx, like other laryngeal affections, is met with more frequently in men than in women. A primary infection is so rarely encountered on the epiglottis or the base of the tongue that it hardly calls for consideration. The secondary form is occasionally met with, and will be briefly considered. Tertiary manifestations are very commonly found, and the laryngeal changes are of great importance. The onset of tertiary symptoms may take place at almost any date from the period of infection, and they may also occur quite early. Thus perichondritis of the larynx may set in while a secondary rash is still present, and within two and a half months from the date of inoculation.

Post-syphilitic conditions are important, as they may be both intractable and serious.

Causes. Amongst the predisposing causes are over-use of the voice, exposure to alcohol and tobacco, and possibly vicissitudes of weather. The male larynx is much more frequently affected than the female. It may occur at any age, but is most common in the third and fourth decades. Syphilitic laryngitis is frequently, but not necessarily, associated with syphilis of the pharynx. The process may extend from the pharynx to the epiglottis and larynx.

Frequency. In practice syphilitic patients show laryngeal affections in .83 per cent. or 2.9 per cent. (Lewin), up to

18 per cent. (Sommerbrodt), 19 per cent. (Türck), or even 26.6 per cent. (Bergh) of cases. In the post-mortem room 15 per cent. of syphilitic subjects show disease in the larynx.²¹ It may be accepted that the larynx becomes affected in at least 10 per cent of syphilitic patients. Amongst the patients of a throat clinic syphilitic laryngitis is met with in 2 to 3 per cent. It is not so common as in the pharynx.

SECONDARY SYPHILIS OF THE LARYNX

It is very likely that the larynx may be attacked during the secondary stage, yet cases rarely come under observation. At the St. Louis Hospital, during six months' study, Mendel saw a large number of cases of syphilis, but only in twenty-six was there a secondary affection of the larynx.²²

It takes the form of erythema or syphilitic catarrh, and the mucous patch. The latter is very rare.

Invasion. Syphilitic catarrh may appear in the larynx, while the primary sore is still present; it is more usual within six or eight weeks of infection, and is generally contemporaneous with secondary lesions. Mendel found that secondary syphilitic laryngitis usually occurs between the third and fifth months after infection. But it may appear after one two, or three years, and is apt to recur.

Symptoms. These are generally trifling, and consist principally in a painless but persistent hoarseness which, in pre-laryngoscopic days, was looked on as an early symptom. Cough and dysphagia are seldom complained of.

Examination. There is a diffuse, purplish congestion of the laryngeal mucosa. If this is somewhat mottled, it is said to be suggestive of syphilis.

The mucous patch is very occasionally seen on the vocal

cords or the laryngeal surface of the epiglottis. It may be followed by a slight abrasion, but tends to disappear rapidly under treatment, leaving no trace behind. Small condylomata are also said to occur on the epiglottis, vocal cords, or posterior wall of the larynx²³ (Plate XLVIII, 1).

Diagnosis. A syphilitic catarrh has no characters to distinguish it from an ordinary laryngitis. Indeed, with few exceptions, the diagnosis will depend on the recognition of secondary symptoms in the pharynx or elsewhere. The possibility of a syphilitic cause should be kept in mind when a chronic hyperaemic laryngitis is met with in an adult male, in whom it does not improve under ordinary remedies. Any secondary symptoms of syphilis in the larynx will speedily yield to general antisymphilitic treatment²⁴. Locally, the soothing treatment required for an ordinary laryngitis is indicated, with strict abstinence from tobacco and alcohol.

TERTIARY SYPHILIS OF THE LARYNX

Tertiary syphilis attacks the larynx in the forms of—

- (1) The gumma and gummatous infiltration.
- (2) Ulceration.
- (3) Perichondritis and necrosis.
- (4) Post-syphilitic induration.
- (5) Syphilitic scars and adhesions.

Invasion. The tertiary form of the disease may appear in the larynx as early as the second year after infection or it may be delayed for fifty years or more. Its appearance and severity are much affected by previous treatment, as well as by the general resistance of the patient.

MORBID ANATOMY

(1) A distinct, circumscribed gumma is not, as a matter of clinical experience, met with very frequently in the larynx. It may be found on the epiglottis, the ary-epiglottic folds, and the neighbouring part of the ventricular bands, still more rarely on the arytenoids, and least frequently on the vocal cords. The surface is smooth, rounded, often irregular, and of a deep red or purple colour. The diffuse irregular gummatous infiltration is more frequently met with, and both forms may be present at the same time. Practically, it is rare to meet with either of them before ulceration has commenced. Gummatous infiltration may take place in limited deposits, or in widely diffused infiltration, analogous to what may happen to the liver. The invasion takes place from the mucosa and sub-mucosa through the muscles to the perichondrium. The epiglottis, the arytenoid area, or some other region may be attacked, or the whole inner surface of the larynx may be infiltrated. This form of tertiary syphilitic laryngitis is apt to occur after incomplete treatment or repeated laryngeal attacks (Plate LIII).

(2) *Ulceration.* The serpiginous ulcer, so commonly met with in the pharynx (Plate XLVII, A), is extremely rare in the larynx, but it may occur on the epiglottis. The deeper ulceration generally encountered in this organ, results from the breaking down of a gumma or of a diffuse gummatous infiltration. The syphilitic ulcer in the larynx is wanting in many of the characteristics it displays in other regions ; but in the more typical form it appears as an irregular, punched-out crateriform ulcer, with more or less steep and sharply-cut

edges, and an inflamed areola. The base of the ulcer is generally coated with a dirty-grey or yellow necrotic slough. When neighbouring gummatous infiltrations break down into ulcers, the latter may run together in an irregular and serpiginous fashion. Round about there is generally much inflammatory hyperplasia, and there may be oedema or pseudo-oedema. The epiglottis is a favourite site for ulceration, so that it is often found to be scarred, atrophied, or entirely destroyed. This destruction may take place painlessly.

(3) *Perichondritis and necrosis.* A perichondritis of syphilitic origin may invade primarily the perichondrium of any of the laryngeal cartilages, or it may result from the deep penetration of a gummatous ulceration, the latter being probably the more frequent. This perichondritis may cause necrosis and exfoliation, so that the arytenoids may be expectorated or portions of the thyroid or cricoid cartilages may necrose and be expelled through the mouth or through the skin. The epiglottis is very frequently affected with perichondritis. In some cases the perichondritis subsides without destruction of cartilage, leaving behind it scarred tissue with its unfortunate syphilitic tendency to contract. In this way, the disease may cause ankylosis of the arytenoid joint—either the true form, from effusion into the joint itself, or false ankylosis from contraction of adhesions around the joint.

(4) *Post-syphilitic hyperplasia.* Tertiary syphilis may leave behind it hypertrophic laryngitis, which is undoubtedly of syphilitic origin, and yet hardly at all amenable to antisiphilitic treatment. This 'para-syphilitic laryngitis', as it has been called by Fournier, is characterized by a more or less diffuse hypertrophic process, giving a generally infiltrated appearance to the larynx. In some cases, it is limited to certain regions.

Its favourite sites being the inter-arytenoid space, the neighbouring vocal processes, and the arytenoids themselves. It is frequently more or less symmetrical. On the vocal cords it may simulate pachydermia, and the inter-arytenoid space is frequently occupied by a heaped-up irregular mass of pachydermia-like hypertrophy.

(5) *Syphilitic scars and adhesions.* Syphilis of the epiglottis not uncommonly leaves behind scars connecting it with the base of the tongue, or stretching from each extremity to the posterior wall of the pharynx. The ventricular band and the arytenoids may be twisted and deformed. A cicatricial web may be left uniting the cords more or less extensively together, generally in the anterior commissure. The vocal cords are apt to remain abraded, rough, thickened, and irregular in contour. The thickenings described in the inter-arytenoid space and around the arytenoid joints may remain permanently.

The interference with the arytenoid joint or general interference with the movements of the cords, very frequently leads to a permanent and often dangerous stenosis of the glottis. This condition, and the raucous voice, sometimes left by comparatively slight laryngeal processes, are peculiar in that they are but little influenced by the most vigorous antisymphilitic measures.

Symptoms. The symptoms will, of course, vary much, both in character and intensity, according to the situation, extent, and virulence of the syphilitic process in the larynx. In most cases the voice is altered, assuming the hoarse and raucous 'gin-and-water' voice of the streets. In distinction from what occurs in tuberculosis, the use of the voice is not painful, unless perichondritis is present. Cough is not a troublesome

symptom, and pain is not marked except when a gumma is rapidly breaking down.

Dysphagia may be present if the disease attacks the epiglottis, the arytenoid cartilages, or, concomitantly, the root of the tongue and walls of the pharynx.

Dyspnoea will vary according to the encroachment on the glottic space. This may take place slowly as in diffuse hypertrophic infiltration or fixation of the vocal cords, or it may take place suddenly as in cases of oedema, or separation of the necrosed cartilage. The dyspnoea may be suddenly and dangerously manifested on exertion or on the administration of a general anaesthetic.

Apart from the noisy breathing of dyspnoea, stridor may establish itself so slowly that it is hardly noticed by the patient. At first it may be present only at night or on exertion.

Syphilis in the larynx may be associated with tubercle or with malignant disease.

Examination will reveal one or more of the various pathological conditions described above (Plate XLVIII, Figs. 3, 4, 5, and 6).

Diagnosis is based on the appearances described, the history of the case, the presence of confirmatory lesions, laboratory test reactions, the progress of the case, and the effects of treatment.

In most cases the appearances are fairly typical and the diagnosis easy. In others the disease can only be recognized by a skilled observer, while, in not a few instances, the diagnosis is so difficult that it must remain in abeyance until either fresh symptoms or the results of treatment or laboratory tests come to our aid. The absence of a history of infection is not of importance. On the other hand, it must not be forgotten that a syphilitic patient may also have a laryngitis which is simple,

tubercular (Plate XLVIII, Fig. 2), or malignant. In regard to the test of treatment, we have also to recollect that some malignant growths will at first improve considerably under antisymphilitic treatment. Another difficulty is presented by the knowledge that a syphilitic process in the larynx may underlie a carcinoma or coexist with tuberculosis.

Diagnosis. From tuberculosis, there will be no difficulty in distinguishing secondary syphilis or a simple gumma ; but with ulcerating syphilis the task is not so easy. The following points must be kept in mind :—

As regards situation, syphilis is very apt to attack the epiglottis on its lingual surface. Tubercle is rarely primary in the epiglottis, and when it does begin here it favours more particularly the laryngeal surface.

In the arytenoid region a gummatous process may be unilateral ; in tubercle it is more apt to attack both sides, though unequally. Syphilis is more common in the anterior region of the cords, although by no means rare in the neighbourhood of the processus vocalis, a favourite site for tubercle

As regards the character of the lesion, there is also a difficulty. The edge of a syphilitic ulcer is well marked, punched out, fleshy, and perhaps undermined ; the floor of the ulcer is a dirty grey, coated with thick adherent pus or irregular tissue, and has little tendency to granulate. In the case of the tubercular ulcer, the edges are flat, irregular, mouse-nibbled, and yellowish, while the floor is shallow, irregular, finely granular, and only dirtied over with patches of mucus and pus. The syphilitic ulcer is more definite than the indolent, indefinite tubercular surface. The syphilitic ulcer tends to grow deeper, is more active, causes more rapid destruction, tends to natural healing, and leaves behind it thickened scar tissue

causing stenosis. Round about a syphilitic ulcer there is a swollen area congested or even acutely inflamed, while the neighbourhood of a tubercular process is indefinite, pale, and indolent.

The syphilitic voice, as already remarked, is raucous, and generally strong and painless. The patient with tuberculous laryngitis speaks in a painful, hollow, low whisper. Pain is only present in certain syphilitic regions. Syphilis is much more frequent than tuberculosis in children. The history of the case is useful. While a recent history may point to either of these diseases, a long-standing history of throat trouble, particularly when associated with extensive local disease and slight tumour symptoms, should point to syphilis.

Treatment by iodide of potassium, as a test, will generally aggravate a case of tuberculosis and lead to oedema. Syphilis is in most cases improved by treatment. Finally, while Von Pirquet's skin-reaction or Calmette's ophthalmic-reaction will confirm a diagnosis of tubercle, the Wassermann test would strengthen the diagnosis of syphilis.

Diagnosis from malignant disease. Malignant disease affecting the larynx by distinct tumour formation is not difficult of diagnosis, but it is quite otherwise when it manifests itself in the form of a diffuse infiltration. In the early stages a gumma is more rapid in its evolution, is rarely painful, and generally yields to treatment. At the same time, it must always be borne in mind that many malignant growths may undergo temporary improvement under the administration of iodide and mercury. Distinct, hard lymph glands in the neck may be met with both in cancer and syphilis, or be absent in the two diseases. A deep or diffuse swelling in the epiglottis, ventricular bands, arytenoids or ary-epiglottic folds,

may be either a syphilitic, tuberculous, or malignant infiltration, particularly if occurring in elderly subjects. But if extensive, neither of the first two processes is accompanied by such marked glandular infiltration as in the case of a malignant growth of the same size. The mistake has been made more frequently of operating on a syphilitic larynx under the impression that it was malignant, than of losing time by prescribing iodide to a laryngeal epithelioma which should be operated on.

In cases of doubtful diagnosis, the patient should receive a thorough syphilitic treatment, including the administration of mercury through the skin. Again in doubtful cases, if malignancy is suspected, a portion of growth may be removed for microscopic examination, provided a good-sized piece in the deeper layers can be secured.

Syphilis may invalidate the movements of a vocal cord by causing a myopathic palsy, by adhesions round the joint, by invading the bulbar nucleus or the recurrent laryngeal nerve anywhere in its course, and lastly by causing a peripheral neuritis.

Prognosis. This may be favourable in all cases which come under treatment in good time. It is well to speak with some reserve in regard to the recovery of a perfectly clear voice. In more advanced cases, and in the parasymphilitic form of hypertrophic laryngitis, it is rare for the voice ever to recover completely. In well-marked or neglected cases it may be necessary to point out to the patient the necessity of rest, care, and prolonged treatment. When stenosis is threatening, the need for tracheotomy may have to be pointed out.

Treatment. The general principles of treatment which guide us in laryngitis should be adopted and varied according as the syphilitic invasion is acute or chronic. In an acute

syphilitic laryngitis, the rest of the voice must be secured by more or less complete silence. In such cases, rest in bed may even be required, with a nutritious diet. In all cases (acute or chronic) tobacco and alcohol should be discontinued. Although in some instances beer or a light wine may be taken with meals, it is much wiser for the patient to avoid all stimulants.

The general lines of treatment will be carried out as sketched in the chapter on Syphilis in the Nose (p. 299). It is of great importance to realize that the general systematic treatment

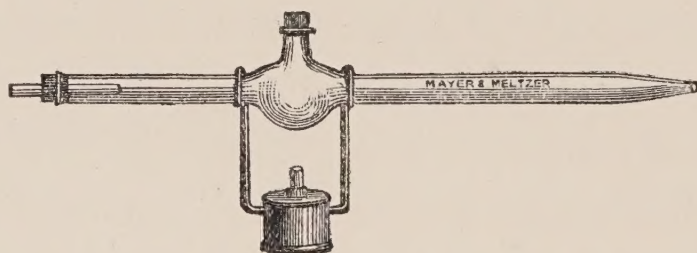


FIG. 4. Calomel Inhaler.

by mercury and the iodides is of the very highest importance in this affection; that it takes precedence of all local measures; and that in many instances it must be pushed rapidly and vigorously. Local treatment is of subsidiary importance in the majority of cases; local medication may even be uncalled for; but local operation, though very rarely required, is sometimes of absolute necessity to save life.

General treatment. The administration of mercury through the skin is required in all instances and should be initiated as soon as possible. The choice of drugs, the methods, doses, and the technique of administration, are all described on pp. 255–338, vol. ii. Laryngeal lesions may also be very beneficially affected by inhalations of sublimed calomel. Two to three grains are placed in a glass bulb where they can be heated so that the fumes can be drawn into the larynx (Fig. 4).

The preparation of grey oil is suitable for the majority

of cases, but the intramuscular injection of calomel is more rapid in its action, and should therefore be adopted in cases which threaten stenosis. In such cases, even the daily injection of a soluble salt may be desirable. When the urgency of the case is not so marked, and there is no objection to the employment of inunction, this method can be used with great success. Its effect is more marked if the patient can remain in bed, well nursed and well fed, and this general care applies particularly to the poorer class of patients who are run down by exposure, want, or dissipation. It is remarkable how an outpatient will only begin to improve when he is placed in the wards, carefully nursed, and thoroughly inuncted. Iodide of potassium will produce speedy relief in many cases. It is important to remember that in some patients it may cause much irritation, profuse catarrh, and even oedema. Its administration must therefore be carefully watched, and it is well to commence with small doses until the tolerance of the patient is declared.

Local measures, as I have already remarked, are generally of secondary importance ; but in all cases they are helpful, and in some they are most valuable. The nose, mouth, and pharynx should be kept clean, and sprayed or douched with some alkaline lotion. The same lotion may be used for cleansing unhealthy ulcerating surfaces ; or they may be wiped with peroxide of hydrogen (10 vols.) and then dusted with iodoform, eucrophen, or a similar antiseptic powder. When there is pain or difficulty in swallowing, it may be relieved by insufflation of orthoform anaesthesin, or a morphia tablet. If granulations round an ulcer do not yield to nitrate of silver (grs. 10 to 20 to the oz.), or sulphate of copper (grs. 20 to the oz.), they may be curetted. When oedema is threatening, it may be checked by sucking ice, spraying with adrenalin, scarification, and, failing these, by

tracheotomy. Tracheotomy may also be necessary when the syphilitic process has led to dangerous narrowing of the glottis. Still, in many cases where this operation seems imminent, it can be avoided by keeping the patient completely at rest, and getting him quickly under the influence of mercury. In some instances tracheotomy may be required in addition. The wearing of the tracheotomy cannula secures such rest to the larynx that the beneficial effect of the mercury is intensified. The specific infiltration may then subside sufficiently to allow of the tube being dispensed with. It is well to perform the tracheotomy as low as possible, as the syphilitic stenosis may have involved the windpipe. Any web in the larynx should be divided, and the tendency to re-formation must be overcome by the prolonged use of a full-sized intubation tube. The treatment of syphilitic stenosis of the larynx is one of the most difficult and unsatisfactory tasks of the laryngologist, owing to the low vitality of the scar-tissue and its inherent tendency to progressive contraction. It should first be determined that no active process is still going on. If there is any doubt about this, a course of inunction is first carried out and the patient's general health and the local condition of the air-passages should be improved as much as possible. Any hypertrophic masses are then cleared out of the larynx with punch forceps, and a large-sized intubation tube is introduced. This may have to be worn for months, or even years, and one made of vulcanite is generally better tolerated than a metal tube. In many cases of marked stenosis, unfortunately, the permanent wearing of a tracheotomy tube is inevitable.

CHAPTER XXII

SYPHILIS OF THE TRACHEA AND BRONCHI

IN the trachea we may meet with erythema, mucous patches, gummata, perichondritis, and consequent cicatricial stenosis, but practically erythema and mucous patches very rarely come under observation. Diffuse gummatous infiltrations are more common than the localised gumma; their usual site is the lower end of the windpipe close to its bifurcation. The next favourite situation is in a subglottic region, and, thirdly, midway between these two points (Plate LIII). The syphilitic process very commonly extends into the main bronchi.²⁵

Unfortunately, gummatous infiltrations in the trachea rarely cause sufficient symptoms to secure notice in the early stages. Attention might be attracted to them by the general symptoms of tracheitis, and their presence can be positively diagnosed by direct tracheoscopy. They may give rise to secondary symptoms from perforation of the oesophagus, aorta, pulmonary artery, or vena cava. But, as a matter of practice, we are seldom consulted until they have subsided, leaving the dangerous sequela of stenosis. Syphilis is the cause of the great majority of cases of stenosis of the trachea.

It might be well, therefore, to give a short consideration to the symptoms of tracheal stenosis. When this comes on gradually, as it will do in the majority of syphilitic cases,

it is curious that a degree of stenosis can be tolerated which would certainly cause death by asphyxia if it came on suddenly. The symptoms will vary according to the extent and degree of the cicatricial narrowing, and, for convenience' sake, three stages have been described :

1. In the first degree, respiration is quite free, except on exertion, when it becomes slightly laboured.

2. In the next degree the respiration is decidedly and continuously noisy, and the voice is slightly weakened.

3. The third degree, in addition to the above symptoms, is marked by attacks of suffocative dyspnoea. The stridor which gradually supervenes is present both in inspiration and expiration, but is commonly more marked in the effort to fill the lungs. When the stridor becomes established, there is some difference between it and that caused by laryngeal stenosis. In the latter, the head is more or less thrown backwards, and the excursions of the larynx are accentuated. In tracheal stenosis, the patient prefers to sit up with the chin somewhat depressed, and the head thrown slightly forwards. It has been suggested that in this position the trachea is relaxed and a better breathing channel provided.

Tracheal stridor is also distinguished from laryngeal by the fact that the voice is not necessarily or characteristically altered. It may remain quite good, although faint or muffled from the weakness of the expiratory blast. For the same reason, there is often a visible effort in phonation. Cough may be absent, and when it occurs it has a metallic strident ring. The stridor is at first faint, distant, and blowing. It is always increased on exertion, and is generally louder during inspiration. It is very remarkable how its presence will sometimes be denied by a patient and escape the notice of his

friends. The only explanation of this is, that they have gradually become accustomed to it, and frequently think it is only 'an asthmatic wheeziness'. In moderately marked cases, the patient should be observed by some one during sleep. The patient may only complain of an oppressed feeling of suffocation, or of inability to lie down or drop off to sleep without a feeling of suffocation. Physical examination may show no signs of cyanosis, although the patient may be sitting up panting for breath, but the face is generally anxious and characterised by an ashy paleness. The pulse increases in rapidity; the senses slowly fail from want of air, but as the patient occasionally rouses up or responds to attention, his closing hours are apt to be very distressing. Deficiency in breath-sounds will be heard in the chest with persistent rhonchi and tracheal breathing.

Examination. The use of the laryngoscope should eliminate any laryngeal obstruction, and if the extrinsic causes of tracheal stenosis in the neck or thorax can be excluded, it may then be safely concluded that the obstruction is in the windpipe or the bronchi. It may be possible, with the ordinary laryngoscope, to see down the trachea beyond the glottis and observe the scabbard-like narrowing of the trachea. Failing this, if the diagnosis is uncertain and the case is not urgent, the trachea can be directly inspected by means of Killian's direct tracheoscopy. The use of the X-rays, and a careful examination of the oesophagus, neck, and chest, may all be necessary to exclude other possibilities and determine the site and cause of the obstruction.

Prognosis. This will depend on the situation and degree of the stenosis. As already remarked, it is seldom that syphilis of the trachea is diagnosed in time to avert, by active treatment,

the consequent narrowing. If the syphilitic process is arrested and the contraction of the windpipe allows of sufficient airway for ordinary purposes, the prognosis is favourable, as further mischief can generally be avoided by thorough treatment. But when the lumen of the windpipe is so reduced that stridor is permanent, even when at rest, if attacks of suffocative dyspnoea threaten, and if the syphilitic ulceration and cicatrization is still progressing, the outlook becomes much more serious. The gravity of the case is still more marked if the stricture is low down in the trachea, beyond the reach of relief by a tracheotomy tube, and it becomes exceedingly grave if the bronchi at the same time are invaded. When tuberculosis is grafted upon these cases, as not infrequently happens, the prognosis is still more serious.

Treatment. Unless it is certain that no active mischief is going on in the trachea, the patient should be at once submitted to active mercurial treatment through the skin. To supplement this, it is well for him to remain in bed, keeping as still as possible and maintaining more or less complete silence. Many such cases will, in this way, escape a threatening tracheotomy.

If the stenosis is established, the patient in all cases should avoid hurry and exertion. Excitement, emotion, bad air, heavy meals—in fact, anything which can embarrass respiration, circulation, or digestion—might suddenly prove dangerous.

A tracheotomy will give relief if the windpipe can be opened at or below the constricted point. In some cases this tube may have to be worn indefinitely. In other cases, the rest given to the air-passages may allow of more effect from the mercury, and when ulceration and catarrh have cleared off,

it may be possible to give up the cannula. When the narrowing lies lower down than the opening of a low tracheotomy, relief may still be obtained in some cases by wearing a Koenig's long tracheotomy tube.

SYPHILIS OF THE BRONCHI

Syphilis of the bronchi only comes under our notice clinically, in the form of syphilitic stenosis. Syphilitic stenosis of the bronchi is nearly always associated with a similar condition in the trachea. While the combination of syphilitic stenosis of the trachea and bronchi is not uncommon, syphilitic stenosis of the main bronchi is rare.²⁶

Pathology. When combined with tracheal narrowing, the syphilitic ulceration is probably only an extension from the lower end of the trachea. But when the bronchi alone are affected, it is more probable that the stenosis dates from a diffuse peribronchial fibrosis which often involves the lungs, at the same time inducing a considerable amount of pulmonary fibrosis.

An ulcer in a bronchus may open into a pulmonary vessel, and simulate phthisis by causing fatal haemoptysis.

Symptoms. If both bronchi are more or less equally stenosed, the symptoms will be identical with those of stenosis of the trachea. If one bronchus is more narrowed than the other, the breath-sounds would be proportionally further diminished on that side. The symptoms are generally confused with those caused by disease in the windpipe, as stenosis of the trachea from syphilis is nearly always present in these cases.

It is noteworthy that, as in all chronic stenoses of the air-passages, a considerable degree of narrowing of the bronchi may occur without the patient being inconvenienced sufficiently to

seek relief. The system gradually accommodates itself to the gradually diminished air-supply, but, with the onset of some trifling catarrh, serious symptoms may develop rapidly and lead to a fatal termination. It is probable that this is brought about by infection of the bronchial catarrh which accumulates in the tubes beyond the obstruction. The retained secretion undergoes decomposition and sets up bronchitis or bronchial pneumonia.

Diagnosis. If the indications already mentioned do not settle the diagnosis, this can be determined by means of Killian's method of direct tracheoscopy and bronchoscopy. Under cocaine or chloroform, it is easy to inspect the trachea and either exclude or confirm the presence of any syphilitic narrowing. The telescope tube can then be projected into the right or left bronchus and it is possible to view the openings of the secondary bronchi.

Prognosis. Prognosis of this condition, by the time that it comes under observation, is generally very serious. As has been remarked previously, the patient is in most cases already incapacitated by syphilitic stenosis of the larynx or the trachea. Even if the syphilitic process is arrested in the bronchi, the unfortunate tendency of specific scar-tissue to contract will still go on. The patient is further handicapped by the syphilitic peri-bronchitis and pulmonary bronchitis. Death occurs from slow asphyxia or pulmonary complications.

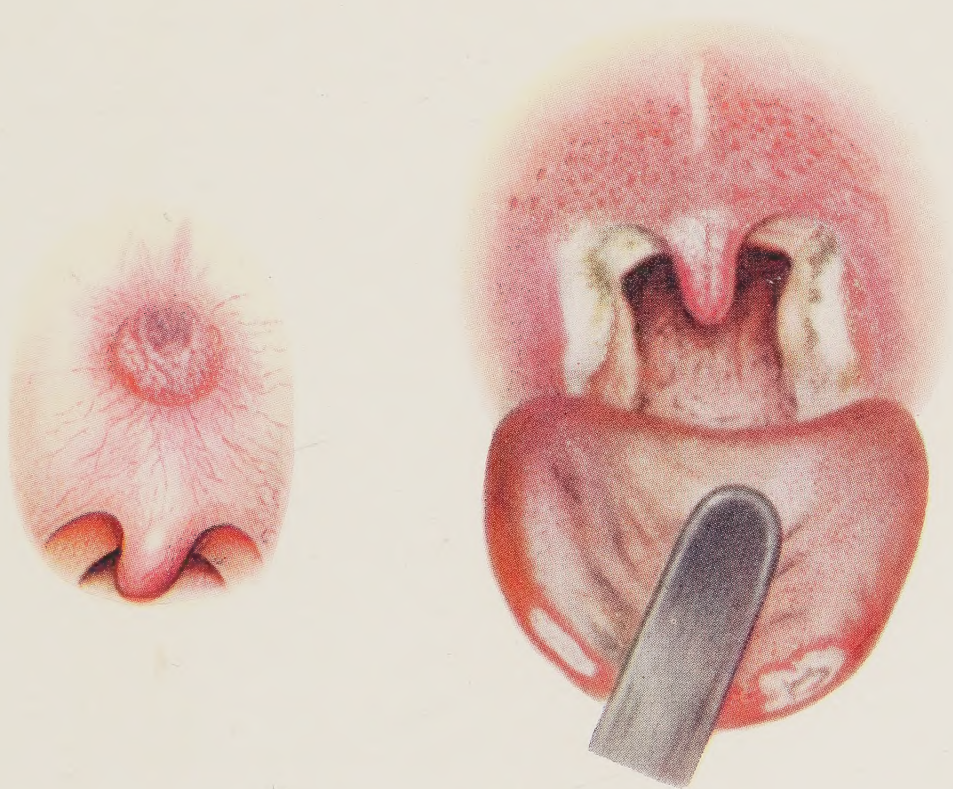
Treatment. Treatment should be conducted on the same lines as was suggested for syphilis of the trachea. A tracheotomy is frequently carried out, but is generally useless. If one bronchus appears to be chiefly affected, it may be possible, by a low tracheotomy, to pass a long rubber tube from the wound in the neck through the constriction. Rest in bed is ordered as

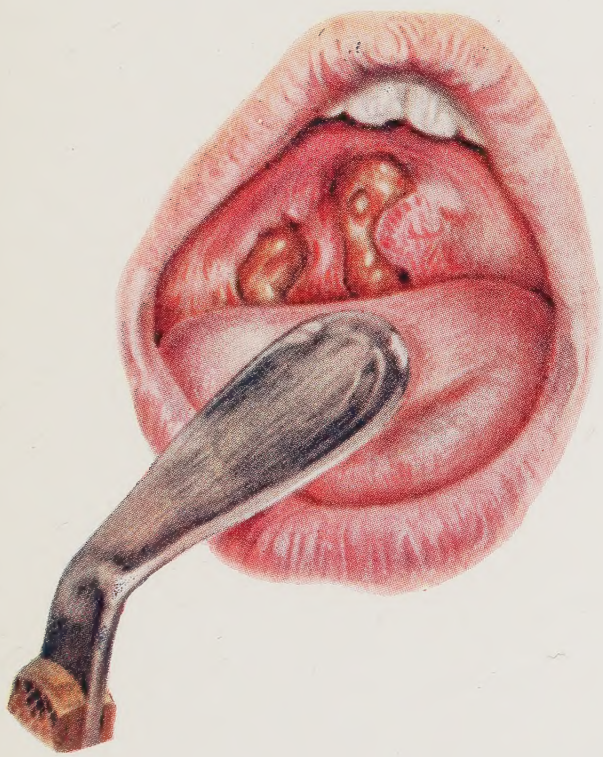
a matter of course, and mercurial treatments through the skin may be tried. According to Rolleston and Cyril Ogle, the only drug which can be given with any rational hope of producing absorption of tertiary syphilitic products is a combination of iodides with full doses of belladonna, the object being to inhibit secretion of the bronchial mucous membrane.²⁷

Alfred Thorne

BIBLIOGRAPHY

1. René Lenoble, Thèse de Paris, 1908.
2. J. Garel, Lyon Médical, xxxii, No. 31, 13 août 1900, p. 469.
3. Gazette des Hôpitaux, No. 20, 15 fév. 1896.
4. Inaugural-Dissertation, Würzburg, 1906.
5. W. Freudenthal, Klin. therap. Wochenschr., No. 24, 1901.
6. Lermoyez, Annales des Mal. de l'Oreille, xxiv. 2, déc. 1898, p. 517.
7. Sarremone, Archives Internat. de Laryngologie, xv, 1902, No. 6, p. 369.
8. Anton Lieven, Die Syphilis der oberen Luftwege.
9. Willijk, Prager Vierteljahrsschrift, 1856, Bd. xxiii, No. 2.
10. W. Scott Renner, Trans. American Laryngol. Assoc., 1903, p. 15.
11. Kuhn, Deutsch. med. Wochenschr., 1896, No. 5, p. 35; Manasse, Virchow's Archiv, Bd. cxlvii, 1897, p. 23; Kuttner, Archiv für Laryng., vii, 1898, Hefte 2 and 3.
12. Diseases of the Throat and Nose, vol. i, p. 86; London, J. and A. Churchill, 1880.
13. Inaugural-Dissertation, Würzburg. Borna-Leipzig, Buchdruckerei Robert Noske, 1906.
14. W. H. Kelson, Brit. Med. Journal, October 26, 1901. P. H. Abercrombie, *ibid.*
15. L. Duncan Bulkley, Syphilis in the Innocent: New York, Bailey and Fairchild.
16. Proceedings Laryngol. Soc. London, 1893, i, p. 47.
17. American Laryngol. Assoc., 18th Congress, 1896, and New York Med. Journ., September 26, 1896.
18. Proceedings Laryngol. Soc. London, v, November, 1897, p. 4.
19. *Ibid.*, x, March, 1903, p. 81.
20. *Ibid.*, xiv, June, 1907, p. 106.
21. Charters Symonds, Proceedings Laryngol. Soc. London, iv, March, 1897, p. 55.
22. Willijk, Prager Vierteljahrsschr., xxiii. 2, 1856, p. 26.
23. Thèse de Paris, 1893.
24. McNeill Whistler, Medical Times, 1872.
25. Percy Kidd, Proceedings Laryngol. Soc. London, i, 3, 1895, p. 18; Clinical Journal, December 30, 1896, p. 153.
26. Samuel Wilks, Guy's Hospital Reports, ix, 1863, p. 37.
27. Clinical Society's Transacts., xxxii, April 14, 1899.







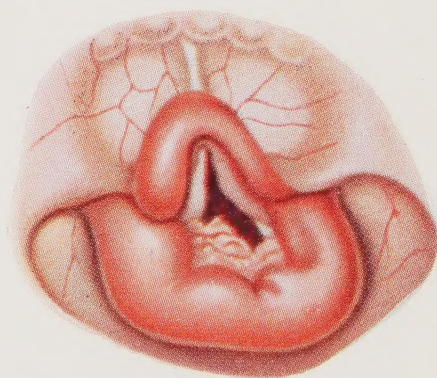
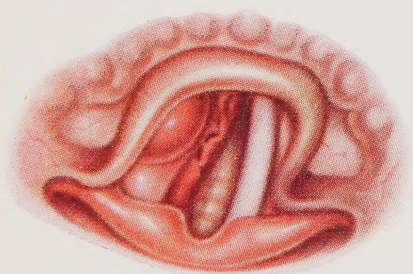
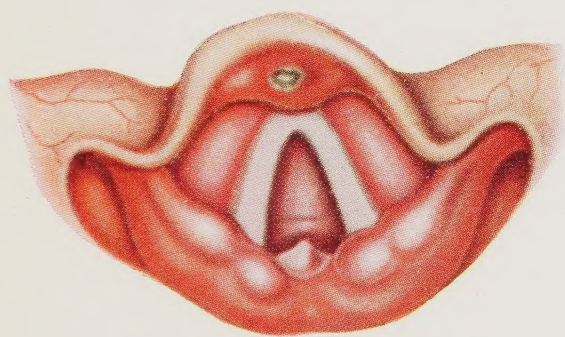
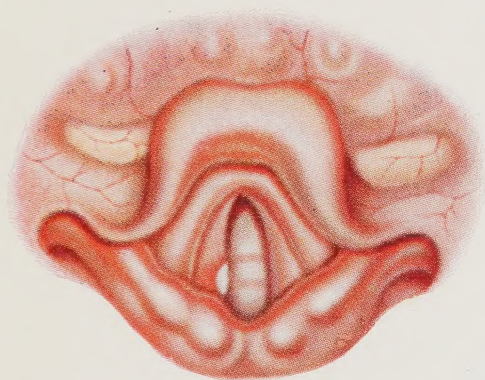


PLATE XLIX

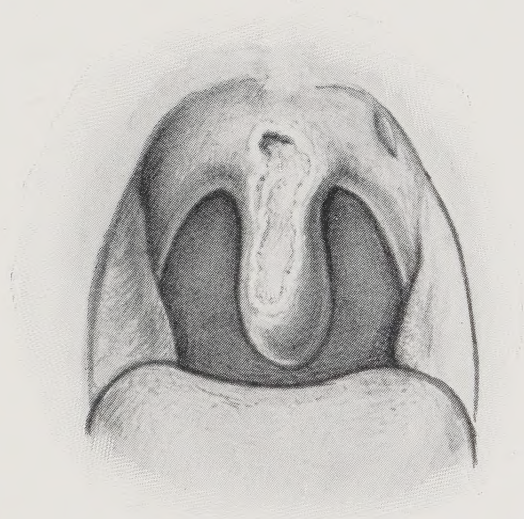


Chancre of the vestibule of the nose (Castex).

PLATE L



A



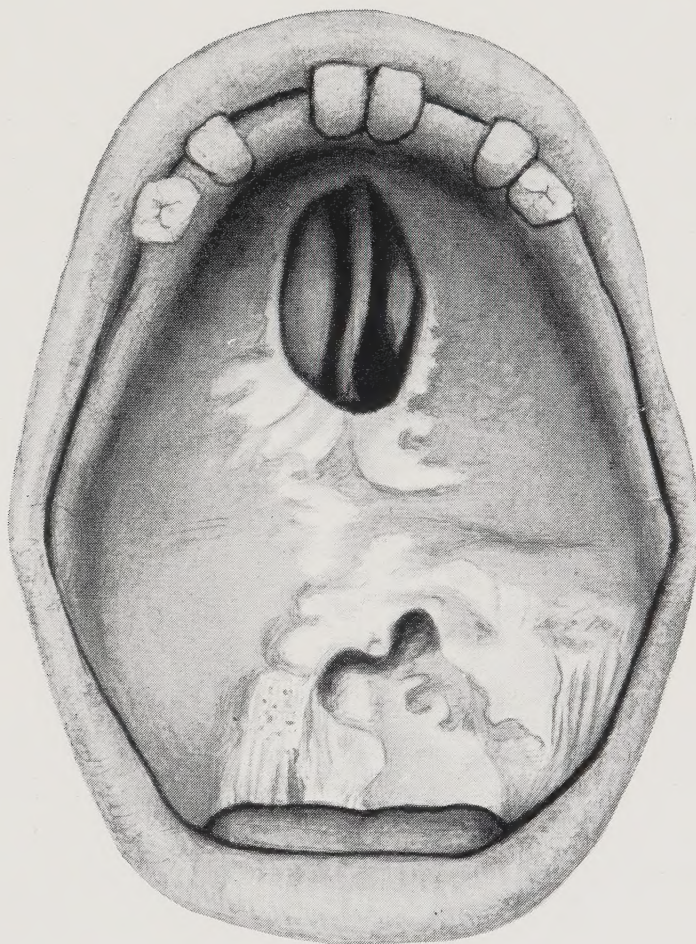
B

A. *Mucous Patch.*

This patch appeared after an ulceration on the left tonsil. The latter was at first mistaken for diphtheria, and the patient was sent to a fever hospital. When no Klebs-Loeffler bacilli appeared she was discharged. At first the tonsillar ulcer was thought to be Vincent's angina, but the appearance of the mucous patch, together with a coppery rash, settled the diagnosis. The mucous patch must have appeared about six months after the infection.

B. *Tertiary ulceration of Soft Palate.*

PLATE LI



Tertiary Syphilis of the Hard Palate and Pharynx.

Perforation of the hard palate (showing the nasal septum and inferior turbinals); extensive sloughing of the soft palate; ulceration of the fauces and posterior pharyngeal wall; scarring and stenosis of the oro-pharynx.



PLATE LII



A

A. *Congenital Syphilis.*

The patient has Hutchinson's teeth, interstitial keratitis, and well-marked saddle-backed nose.

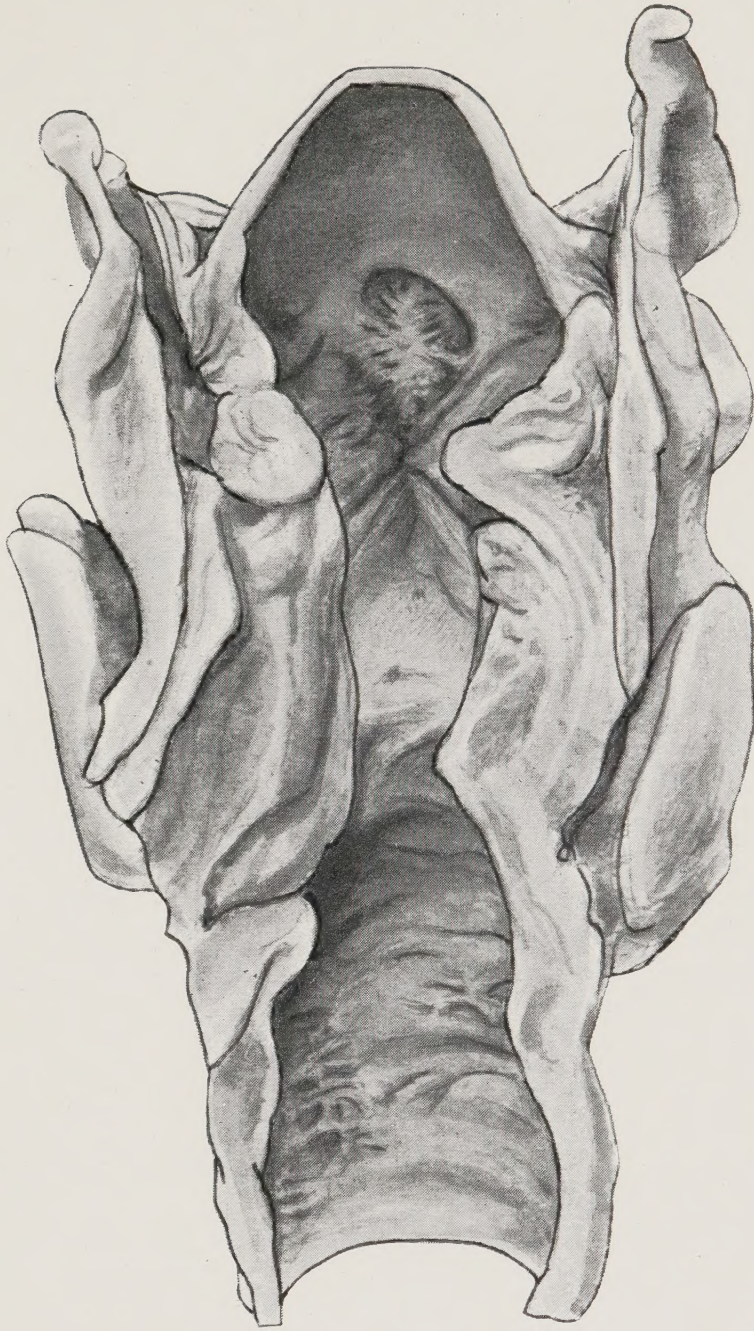


B

B

The same patient after the nasal deformity had been corrected by subcutaneous injections of paraffin.

PLATE LIII



Tertiary Syphilis of the Larynx.

The larynx, with part of the trachea, has been opened longitudinally from the back. The cavity shows everywhere, with the exception of the upper part, the contracted scars and thickening left by ulceration. The stellate puckering in the region of the petiolus is well shown. At the lower level of the cricoid cartilage, which had evidently been diseased, the destruction of the soft parts and the cartilage has resulted in contraction, producing the ledge which is seen projecting into the subglottic region, and reducing the airway to less than the size of a pencil. The upper part of the trachea (about $1\frac{1}{2}$ inches on either side) shows the white, glistening, shrunken scars resulting from long past ulceration.

INDEX

- Acne, syphilitic (*see* Syphilides, pustular), 69.
- scrofulosorum, diagnosis from tertiary syphilis, 132.
- simulating leucoderma syphiliticum, 114.
- Actinomycosis, diagnosis from tertiary syphilis, 132, 322.
- Alopecia, cicatrisata, 99; syphilitica, 98.
- Amaurosis, 213.
- Angina, Vincent's, diagnosis from tertiary syphilis, 311.
- Anus, syphilides of the, 150.
- Aphthae venereae of Plenck, 19.
- Aristol in the treatment of ozoena, 305.
- Atropine, in the treatment of syphilitic iritis, 198.
- modes of administering, 200.
- dangers of, 201.
- in irido-cyclitis, 210.
- Auditory nerve, tertiary syphilis of the, 266.
- Auricle, primary syphilis of the, 240.
- secondary syphilis of the, 241.
- tertiary syphilis of the, 241.
- Baths in the treatment of syphilis, 168.
- Bazin's disease, diagnosis from tertiary syphilis, 131.
- Bronchus, syphilis of the, 345.
- Cancer, diagnosis from chancre of pharynx, 311.
- diagnosis from tertiary syphilis in larynx, 336.
- diagnosis from tertiary syphilis generally, 130.
- leukoplakia of penis followed by, 154.
- Caseation in gummata, 87.
- Catheter, infection conveyed by use of infected Eustachian, 240, 246.
- Cautery in the treatment of cutaneous syphilis, 174.
- Chancre, diagnosis from cancer, 155.
- Choroid, gumma of the, 227.
- various inflammations of the, 206, 220, 224.
- Choroiditis, chronic suppurative, 220.
- disseminated, occurring in interstitial keratitis, 206, 209.
- syphilitic, 224.
- Chromic acid in ozoenic ulcers, 305.
- Classifications of cutaneous syphilides, by Plenck in 1783, 19.
- — by Trappe in 1803, 20.
- — by Biett in 1836, 21.
- — by Cazenave in 1838, 21.
- — by Ricord in 1838, 21.
- — by Hardy in 1864, 23.
- — by Erasmus Wilson in 1852, 23.
- — by Bazin in 1834, 24.
- — by Berkeley Hill, 25.
- — by Sangster and Crocker, 25.
- — by Fournier, 27.
- — by Neumann, 28.
- — by Kaposi, 28.
- — by Lang, 28.
- — by Lesser, 29.
- — by Joseph, 30.
- — by Finger, 31.
- — by Neisser, 32.
- value of, 33.
- of papular syphilides, 51-2.
- of squamous, 81.
- of mucous membrane syphilides, 135.
- in syphilis of the orbit, 190.
- of inherited aural syphilis, 273.
- of tertiary syphilis of the nose, 296.
- 'Combined paralyses,' 260.
- Condyloma, aural, in congenital syphilis, 274.
- of the external meatus, 242.
- fungating, 147.
- of the membrana tympani, 244.
- papulo-hypertrophic mucous syphilides, 148.
- venerea, of Plenck, 19.
- Conjunctiva, most frequent seat of chancre in eye, 183.

- Conjunctiva, hyperaemia of the, 186.
 Copper, sulphate of, in ozoenic ulcers, 305.
 Cornea, syphilitic affections of the, 203.
 Corona veneris, a papular syphilide, 49.
- Dermatitis, artefacta, diagnosis of tertiary syphilis from, 133, 142.
 — seborrhoeic, as distinct from syphilis, 164.
 — vacciniiform, 165.
- Diagnosis of cutaneous syphilides in general, 105.
 — of syphilitic roseola from exanthemata, 107.
 — — erythemata, 108.
 — — seborrhoea and drug rashes, 109.
 — — pityriasis rosea, 111.
 — — chromatic, or leukodermic, syphilide, 112.
 — of pigmentation syphilides from other pigmentations, 113.
 — of papular syphilide from psoriasis, 114.
 — — lichen planus and lichen acuminatus, 116.
 — — lichen scrofulosorum, 117.
 — — lupus and leprosy, 118.
 — — acne and eczema, 119.
 — — molluscum contagiosum, keratosis pilaris, k. follicularis, lymphangioma tuberosum, pityriasis lichenoides chronica, dermatitis nodulans psoriatiformis, 120.
 — — parakeratosis variegata, 121.
 — between late syphilis and tubercle, 124, 128.
 — — Bazin's disease and leprosy, 131.
 — — actinomycosis, 132.
 — — cancer, 130.
 — — dermatitis, sporotrichosis, 133.
 — between muco-cutaneous syphilides and lupus, 136.
 — — buccal syphilides, 142.
 — of chancres of the eyelid, 184.
 — — nose, 291.
 — pharynx, 306.
 — of secondary syphilis of the larynx, 330.
 — — nose, 295.
- Diagnosis of secondary syphilis of the pharynx, 316.
 — of tertiary syphilis of the sclera, 229.
 — — nose, 299.
 — — larynx, 334.
 — — pharynx, 321.
 — of syphilis of the orbit, 190.
 — — bronchi, 250.
 — of irido-cyclitis, 195.
 — of papillitis, 222.
 — of syphilitic retinitis, 219.
 — of paralysis of the ocular muscles, 216.
- Diphtheria, diagnosis from syphilitic pharyngitis, 311.
- Diplopia produced in chronic periostitis or gumma of orbit, 191.
- Duboisin, its value as an alternative to atropine, 202.
- Ducrey, bacillus of, in soft sores, 149.
- Duct, stricture of nasal, 187.
- Dysphagia in syphilis of the larynx, 334.
- Dyspnoea in syphilis of the larynx, 334.
- Ecthyma, syphilitic (*see* Ecthematous syphilide), 74.
- Epiphora, its absence after removal of lachrymal duct, 199.
- Epithelioma of pharynx, diagnosis from gumma, 322.
- Erythemata, diagnosis from roseola, 108.
 — in syphilis of mucous membranes, 135.
 — as distinguished from syphilitic affections, 163.
 — syphilitic, in secondary syphilis of the pharynx, 313.
- Eserine, importance of avoiding its use in syphilitic iritis, 199.
 — no use to relieve tension in irido-cyclitis, 210.
- Etiology, of choroiditis, 224.
 — of interstitial keratitis, 203.
 — of ocular chancre, 183.
 — of paralysis of the ocular muscles, 215.
 — of syphilis of the pharynx, 308.
 — of tertiary syphilis of the nose, 300.

- Europhen, in the treatment of ozoena, 305.
 — — laryngeal syphilis, 339.
 Eustachian tube, primary sore of the, 246.
 Euthymol, its use in ozoena, 304.
 Evolution, period of, in erythematous syphilides, 38.
 Exanthemata, diagnosis from, 107.
 Excrescences of Trappe, 20.

 Fever, its slight character in syphilitic affections, 9.
 — in the concomitant phenomena of erythematous syphilides, 40.
 — 'invasion', as well as 'eruption', 41.
 Formidin in the treatment of ozoena, 305.
 Formoliptol in the treatment of ozoena, 304.

 Glands, affected in ocular syphilis, 183.
 — inflammation of lachrymal, 217.
 — involvement of submaxillary in primary syphilis of the pharynx, 306.
 Glanders, diagnosis from primary syphilis of nose, 293.
 — diagnosis from tertiary syphilis of the pharynx, 322.
 Glossitis, syphilitic, 141.
 — caused by buccal syphilides, 141.
 — exfoliativa marginata, 145.
 Granuloma annulare, as distinguished from syphilis, 165.
 Gummata, histology of, 86.
 — of the auricle, 241.
 — at birth, 161.
 — of the choroid, 227.
 — of external auditory meatus, 244.
 — of eyelids and conjunctiva, 187.
 — of the mastoid, 253.
 — of the nose, 296, and the differential diagnosis, 299.
 — of the orbit, 191.
 — of the pharynx with its different stages, 318.
 — of the sclera, 228.
 — of the temporal bone, 253.
 Gutta rosacea of Plenck, 19.

 Hair, loss of, 98.
 Histology, of gummata, 86.
 — of rosaceolous maculae, 42.
 — of late syphilides, 86.
 — of papular syphilides, 50.
 History, recognized in Europe at end of fifteenth century, 3.
 — various characteristics noted in sixteenth century, 4.
 — typical sore first described in 1786, 4.
 — differentiated from gonorrhoea, 1793; discovery of *Spirochaete pallida* by Schaudinn, 5; of aural syphilis; syphilitic deafness first recorded by Feichtmann in 1857, 236; Wilde's notes on syphilitic meningitis, 237.
 Herpes syphiliticus, of Plenck, 19.
 — diagnosis from erosive syphilides on mucous membranes, 136.
 — diagnosis from buccal syphilides, 142.
 — etiology of, 144.
 Heurteloup, its value in ocular tension, 212.
 Homatropine, its use instead of atropine, 202.
 Hyoscine, its use instead of atropine, 202.
 Hyperacusis, an early symptom of syphilitic deafness, 268.
 — — in tabes and general paralysis, 270.
 Hyperplasia, post-syphilitic, of larynx, 332.

 Impetigo, napkin, as distinguished from syphilis, 164.
 — syphilitic (*see* Pustular syphilides), 69.
 — venerea, of Plenck, 19.
 Infants, types of syphilitic, 158.
 — alopecia in syphilitic, 160.
 Iodoform, in the treatment of ozoena, 305.
 — — laryngeal syphilis, 339.
 Irido-cyclitis, 192.
 Iris, bombé, 195, 196.
 Iritis, essential differences between syphilitic and other forms, 198.

Itching, its absence in syphilitic affections generally, 10.
— its presence in leukoplakia of the penis, 153.

Keratitis, in irido-cyclitis, 198.
— interstitial or parenchymatous, 203.
— punctata, 204.
— preceding syphilis of the labyrinth, 236.

Labyrinth, interstitial keratitis preceding syphilis of the, 236.
— secondary and tertiary syphilis affecting the, 257.
— congenital affections of the, 278.
— syphilitic deafness due to changes in the, 281.

Larynx, primary syphilis very rare in the, 328.
— secondary syphilis of the, 325.
— tertiary syphilis of the, 330.

Leukoplakia, 151.
— relation to malignant disease, 152.
— of the penis, 153.
— carcinomatous degeneration in, 154.

Lens, never directly affected by syphilis, 214.
— no direct syphilitic cataract of the, 215.

Leprosy, diagnosis of tertiary syphilis from, 131.
— distinguished from primary syphilis in the nose, 293.

Lichen, syphilitic (*see* Papular syphilides), 48, 61.

Lips, erosive syphilides of the, 136.

Listerine, use in treatment of ozoena, 304.

— — primary syphilis of the pharynx, 312.

Loretin in the treatment of ozoena, 305.

Lotions in the treatment of syphilis, 169.

Lupus vulgaris, diagnosis from late syphilis, 124.

— erythematosus, diagnosis from late syphilis, 128.

— diagnosis from primary nasal syphilis, 293.

Lupus, diagnosis from tertiary syphilis of the pharynx, 322.

Maculosum, erythema syphiliticum, 37.

Meatus, condylomata of the external auditory, 242.

— gumma of the external auditory, 244.

Membrana tympani, condyloma of the, 244.

Meningitis, basal gummatous, essential lesion of syphilis of the auditory nerve, 268.

— late syphilitic, 282.

Mentagra venerea of Plenck, 19.

Mercury, in the treatment of cutaneous syphilides, 168-75.

— in the treatment of interstitial keratitis, 208.

Middle ear, syphilis of the, 247.

— Politzer's views on syphilis of the, 249.

— pyogenic infection and syphilis of the, 251.

— tertiary syphilis in suppuration of the, 252.

— little known of pathology of syphilitic changes in the, 254.

— little relation with genesis of typical syphilitic deafness, 255.

Mouth, syphilides in the, 139.

Mucous membranes, in tubercle and in syphilis, 126.

— syphilides of, 134.

— classification of syphilides of, 135.

Mucous patch in secondary syphilis of the pharynx, 315.

Neuro-syphilides, Unna's classification of, 38.

Nomenclature—pockis, pocks, pox, great pox, pudendagra, 3; morbus gallicus, 4; lues venerea, 5.

Nose, cause of depressed bridge of syphilitic, 301.

— post-syphilitic affections of the, 306.

Nystagmus in syphilitic labyrinthitis, 259.

- Oedema in ocular syphilis, 183.
 Ointments, in the treatment of syphilis, 171.
 Onychia, 101.
 — sicca, 102.
 — peri-, 103.
 Ozoena, syphilitic (*see* Rhinitis atrophic).

 Pain, its absence in syphilis generally, 10.
 — very severe in irido-cyclitis, 195.
 — a symptom of secondary tympanic catarrh, 250.
 Palate, post-syphilitic perforations of the, 307.
 — operation for adherent, 327.
 Papillitis, 222.
 Paracentesis, in severe cases of irido-cyclitis, 211.
 Paralysis of the ocular muscles, 215.
 Pathology, general, 15.
 — of auditory nerve in syphilis, 267.
 — of syphilitic bronchi, 345.
 — of secondary syphilitic deafness, 260.
 — of tabetic deafness, 271.
 — of late syphilitic deafness, 283.
 — of the petrous bone in syphilitic deafness, 266.
 — of syphilitic irido-cyclitis, 193.
 — of irido-cyclitis, 206.
 — of tertiary syphilis of the nose, 296.
 — of tertiary syphilis of the larynx, 331.
 Perhydrol in the treatment of ozoena, 304.
 Peri-chondritis, syphilitic, of the nose, 299.
 — — of the larynx, 332.
 — — of the trachea, 341.
 Peri-onychia, 104.
 Periostitis, chronic syphilitic, of the orbit, 191.
 Pemphigus, syphilitic, as distinguished from neonatorum, 161.
 Phagedaena, occurring in the genital organs, 157.
 — occurring in gummatous and primary sores, 96.
 Pharynx, chancre of the, 308.
 — secondary syphilis of the, 313.
 Pharynx, tertiary syphilis of the, 317.
 — post-syphilitic affections of the, 324.
 Phenosalyl in the treatment of ozoena, 304.
 Phosphorus, poisoning by, diagnosis from tertiary syphilis, 323.
 Photophobia, in irido-cyclitis, 196.
 — in interstitial keratitis, 205.
 Pigmentation of skin in syphilis, first noted in 1497, 4, 11.
 — — Unna's views as to cause, 17.
 — — diagnosis from pigmentations of various other diseases, 113.
 Pilocarpine, its use in secondary syphilitic deafness, 264.
 — in adolescent congenital syphilis, 281.
 Pityriasis rosea, diagnosis of roseola from, 111.
 Plasmomata, 80.
 Plasters in the treatment of cutaneous syphilides, 174.
 Politzer, his views on syphilis of the middle ear, 245.
 Polypus, middle-ear suppuration associated with, 251.
 Powders in the treatment of syphilis, 173.
 Prognosis, in amaurosis (syphilitic), 214.
 — in adolescent syphilis of the labyrinth, 276.
 — in chancre of the eyelid, 185.
 — in congenital syphilitic deafness, 275.
 — in gumma of the sclera, 229.
 — in interstitial keratitis, 209.
 — in irido-cyclitis, 197.
 — in ozoena, 303.
 — in papillitis, 222.
 — in paralysis of the ocular muscles, 216.
 — in primary syphilis of the nose, 298.
 — in primary syphilis of the pharynx, 312.
 — in secondary syphilis of the pharynx, 316.
 — in syphilis of the bronchi, 346.
 — in secondary syphilitic deafness, 262.

- Prognosis, in tertiary syphilis of the larynx, 337.
- in tertiary syphilis of the pharynx, 323.
- in tracheal stridor, 343.
- Pseud-pelade (*see* Alopecia cicatriscata), 99.
- Psoriasis, syphilitic (*see* Papular syphilides), 48, 54, 57.
- diagnosis of late syphilis from, 129.
- Pudendagra, origin of name of, 3.
- Torella's classification of, 19.
- Pustules, of Trappe, 20.
- syphilitic (*see* Papular syphilides of later writers), 48.
- Rashes, quinine, belladonna, chloral, antipyrin, vaccination, arsenic, iodide, and bromide diagnosed from roseola, 109-10.
- 'wandering,' 145.
- Retina, thrombosis in the, 221.
- Retinitis, syphilitic, 218.
- proliferans, pigmentosa, 220.
- Rhagades venereae of Plenck, 19.
- Rhinitis, atrophic, 301.
- Roseola, circinata, of Fournier, 37.
- urticata, 37.
- syphilitic (syn. erythematous syphilide), 37.
- differential diagnosis of, 107.
- Rupia (*see* Ecthematous syphilide), 74.
- 'Salmon patch,' 205.
- Sanitas in ozoena, 304.
- Scabies venerea of Plenck, 19.
- Scars in lupus vulgaris and syphilis, 127.
- Sclera, gumma of the, 228.
- inflammation of the, 227.
- Seborrhoea, diagnosis of roseola from, 109.
- Sequestra in nose, treatment of, 305.
- Silver, nitrate of, in treatment of ozoenic ulcers, 305.
- Spirochaete pallida*, first discovery of the, 5, 15.
- presence in syphilitic scar tissue, 18.
- present in erythematous syphilides, 43.
- Spirochaete pallida*, their likeness to the spirillum of framboesia, 95.
- present in erosive syphilides of the mucous membranes, 136.
- present in eye lesions, 229.
- Sporotrichosis, diagnosis of tertiary syphilis from, 133.
- Stricture of the nasal duct, 187.
- Stridor, tracheal, 342.
- Symptoms, of syphilides in general, 1-14.
- of chancre of pharynx, 309.
- of choroiditis, 224.
- of chronic periostitis of the orbit, 291.
- of irido-cyclitis, 195.
- of paralysis of the ocular muscles, 216.
- of primary syphilis of the nose, 292.
- of secondary syphilis of the nose, 294.
- of syphilitic retinitis, 218.
- of stricture of the nasal duct, 188.
- of secondary syphilis of the pharynx, 313.
- of secondary syphilis of the larynx, 329.
- of stenosis of the trachea, 342.
- of syphilis of the bronchi, 345.
- of tertiary syphilis of the larynx, 333.
- of tertiary syphilis of the pharynx, 230.
- Syphilid, Flecken- (*see* Erythematous syphilides), 37.
- Knötchen- (*see* Papular syphilides), 48.
- Syphilides, Alibert's name for syphilitic skin affections, 20.
- pustulantes (12), végétantes (6), ulcérautes (3), 20.
- exanthématique, vésiculeuse, pustuleuse, tuberculeuse, papuleuse, and squameuse of Bielt; primary, secondary, and tertiary of Ricord, 21.
- précoces, intermédiaires, tardives of Hardy; two forms of Sir Erasmus Wilson, 23.
- exanthématiques and circonscrites of Bazin (1834), 24.
- macular, papular, vesicular and

- pustular, tubercular, and pigmentary of Berkeley Hill; classed according to Sangster and Crocker, 25.
- Syphilides, classifications of Fournier, 27; Neumann, Kaposi, Lang, 28; Lesser, 29; Joseph, 30; Finger, 31; Neisser, 32.
- early, appearance, distribution, and character, 35.
 - — development, influence of local conditions, classification of, 36.
 - — erythematous (syns. roseolous, macular, exanthematous), 37.
 - — chromatic, Hardy's pigmentary, 43.
 - — different views about and different forms of, 44.
 - — leukodermic (two principal forms), 46.
 - — papular (formerly called pustular), 48.
 - — papular, Fournier's classification of, 51.
 - — large elevated papular, small follicular or miliary, 63.
 - — rarer forms of, including vesicular (or eczematous), 65; small vesicular herpetiform, 67.
 - — pustular (syns. pustulo-crusted, varicelliform, 70; acneiform, 72), ecthymatous (syns. pustulocretaceous pustulo-ulcerative), 75; bullous, 79; squamous, 80.
 - late, their difference from early, 85.
 - — including gummatous, 86; framboesiform, ulcerative, nodular (or tuberos), 87; serpiginous, 89.
 - diagnosis of cutaneous, 105.
 - of mucous membranes, Fournier's classification, 135.
 - — differential diagnosis, 136.
 - — including papulo-erosive, 136, 148; papulo-hypertrophic, 137, 148; ulcerative, 138, 148.
 - — diagnosis from soft sores, 149.
 - — in mouth and throat, 138; of the male generative organs, 146; female, 147.
 - — late lesions, 151.
 - congenital, 158.
- Syphilides of the auricle, 241.
- Syphilis papulosa (*see* Papular syphilides), 48.
- of the hair and nails, 98.
 - the relation between leukoplasia and, 154.
 - hereditary, its signs in children, 161.
 - eruptions of congenital, 162.
 - of the orbit, 190.
 - congenital aural, 273.
 - acquired aural, 239.
 - of trachea and bronchi, 341.
 - of the eye, primary, secondary, and tertiary, 184, 186.
 - of the nose, primary and secondary, 291; secondary, 294; tertiary, 296.
 - of the pharynx, primary, 308; 'insontium,' 309; secondary, 313; tertiary, 317.
 - of the larynx, primary, 328; secondary, 329; tertiary, 330.
- Syphiloderma papulosum (*see* Papular syphilis), 48.
- tuberculatum disseminatum (*see* Papular syphilis), 48.
 - follicular, 61.
 - vesiculosum, herpetiforme, eczematousum, 65.
 - pustulosum, 69.
 - varioliforme, 70.
 - impetiginosum, 73.
 - large flat pustular, 74.
- Syphiloma, diffuse hypertrophic of vulva (Fournier), 156.
- rare form on nasal septum, 299.
- Tabes, diagnosis of, 269.
- Throat, mucous syphilides of the, 138.
- Tinea venerea, of Plenck, 19.
- Tinnitus in children, 276.
- Tonsil, chancre of the, 308.
- hypertrophy, in secondary syphilis, 310.
 - palatine, in secondary syphilis, 315.
 - Luschka's, in secondary syphilis, 315.
 - — in tertiary syphilis, 320.
 - erosive syphilides of, diagnosis of, 136.

- Tonsillitis, diagnosis from primary syphilis of the pharynx, 311.
 — — tertiary syphilis of the pharynx, 322.
 Trachea, stenosis of, 341.
 — stridor of the, 342.
 Treatment of chancre of the eyelid, 185.
 — of choroiditis, 227; and chronic suppurative choroiditis, 221.
 — of cutaneous syphilides by baths, 168; lotions, 169; ointments, 171; powders, 173; plasters, 174; and cautery, 175.
 — of conjunctival hyperaemia, 186.
 — of condylomata of the external auditory meatus, 243.
 — of dacryo-adenitis, 218.
 — of secondary 264, and tertiary 269, syphilitic deafness.
 — of gumma of the sclera, 229.
 — of herpes, 144.
 — irido-cyclitis, 198, 210.
 — of leukoplakia, 152.
 — of tertiary syphilis of the larynx, 337.
 — of syphilitic conditions of the middle ear, 255.
 — of paralysis of the ocular muscles, 217.
 — of primary 294, and secondary 295, syphilis of the nose.
 — of ozoena, 303.
 — of syphilitic retinitis, 219.
 — of retinitis proliferans, 220.
 — of papillitis, 223.
 — of phagedaenic ulceration, 96.
 — of stricture of the nasal duct, 189.
 — of syphilitic disease of the orbit, 192.
 — of secondary 316, and tertiary 316, syphilis of the pharynx.
 — of post-syphilitic affections of the pharynx, 324.
 — of tracheal stridor, 344.
 Tubercle, mucous, of the female genital organs, 148.
 Tuberculosis, diagnosis from primary syphilis of the pharynx, 311.
 — diagnosis from tertiary syphilis of the larynx, 335.
 Ulcer, stricture of nasal duct leading to hypopyon, 188.
 — tertiary syphilitic ulcers of the nose, 297.
 — tertiary serpiginous ulcers of the pharynx, 320.
 — tertiary ulcers of the larynx, 331, 335.
 — dyspeptic, points in the differential diagnosis of buccal syphilides from, 144.
 — treatment of late syphilitic, 171.
 Uterus, rarity and distribution of syphilides of the, 149.
 Vagina, rarity and distribution of syphilis of the, 149.
 Varieties, of the erythematous syphilides, 37.
 — of the flat papular syphilides, 56.
 — of the vesicular syphilides, 67.
 — of the ecthematous syphilides, 75, 77.
 — of the late syphilides, 86.
 — of the syphilides of the mucous membranes, 135.
 — of alopecia, 99.
 — of onychia and peri-onychia, 102-3.
 Verrucae venerea of Plenck, 19.
 Vertigo in relation to congenital syphilitic deafness, 277.
 Vestibule, nasal, stenosis and atresia of the, 306.
 Vulva, as the seat of erosive syphilides, diagnosis of, 136.
 — mucous syphilides of the, 147.
 — gummata of the, 157.
 'Wandering rash,' 145.
 Warts, gonorrhoeal, as distinguished from condylomata and mucous tubercles, 149.
 Wig, syphilitic mop or, 160.
 Wilde, Sir Wm., syphilitic myringitis of, 247.
 Zinc, chloride of, use in treatment of primary syphilis of the pharynx, 312.

